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SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, [illegible] 1920

No. [illegible] 219

WILLIAM L. WALLS, ATTORNEY GENERAL OF THE STATE OF WYOMING; FRANK A. LITTLE, PROSECUTING ATTORNEY OF BIG HORN COUNTY, AND ROBERT D. CAREY, GOVERNOR OF THE STATE OF WYOMING, APPELLANTS,

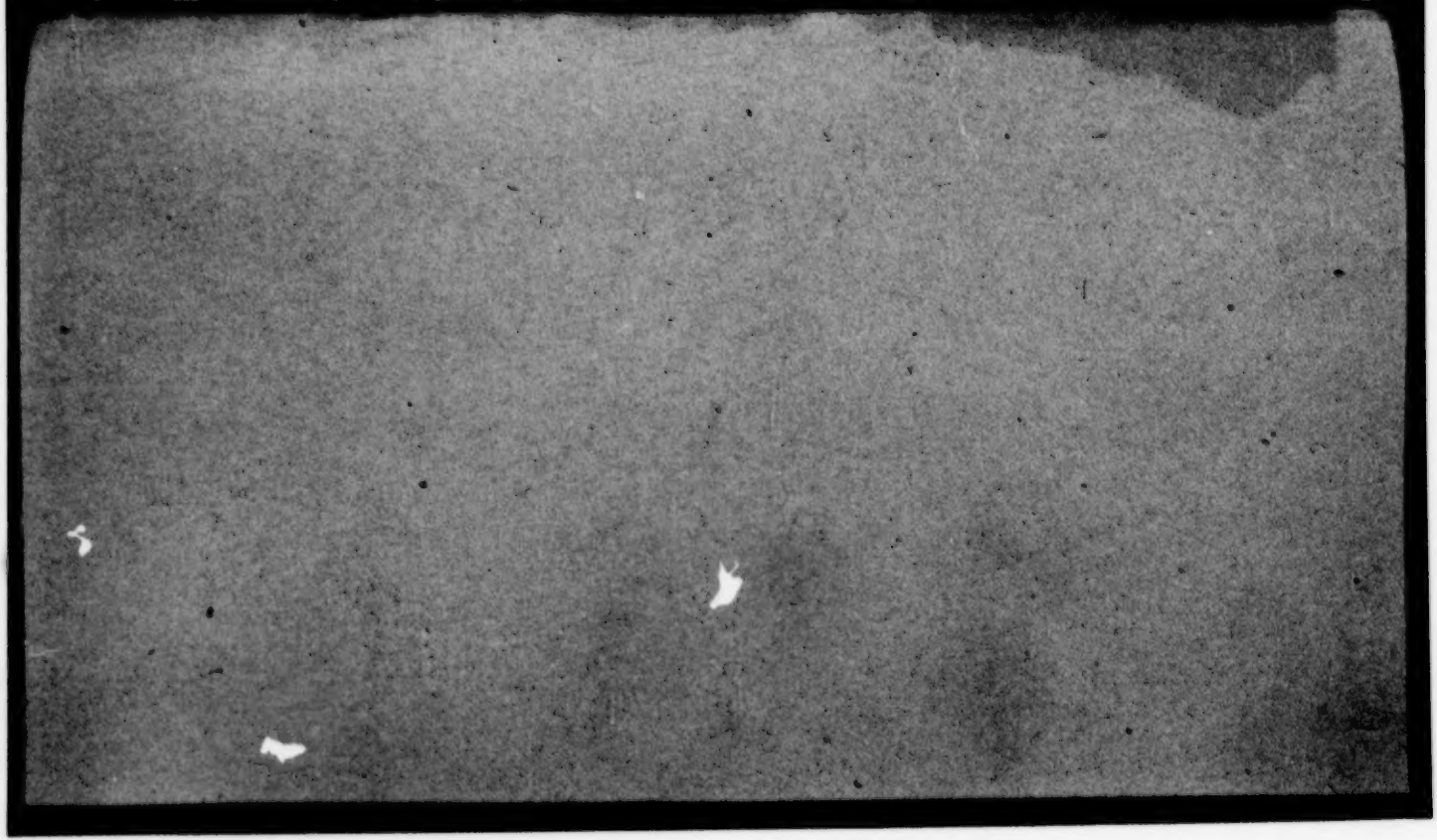
vs.

MIDLAND CARBON COMPANY AND OCCIDENTAL OIL AND GAS COMPANY.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF WYOMING.

FILED JANUARY [illegible], 1921.

([illegible])



(27,422)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1919.

No. 667.

WILLIAM L. WALLS, ATTORNEY GENERAL OF THE STATE OF WYOMING; FRANK A. LITTLE, PROSECUTING ATTORNEY OF BIG HORN COUNTY, AND ROBERT D. CAREY, GOVERNOR OF THE STATE OF WYOMING, APPELLANTS,

vs.

MIDLAND CARBON COMPANY AND OCCIDENTAL OIL AND GAS COMPANY.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF WYOMING.

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1 Pleas in the District Court of the United States for the District of Wyoming, Sitting at Cheyenne.

Be it remembered that heretofore and on, to-wit, the twenty-ninth day of September, in the year of our Lord, One Thousand Nine Hundred and Nineteen (1919), came the Midland Carbon Company and Occidental Oil and Gas Company, and filed in said court their Bill of Complaint, and sued out and under the seal of said court a Subpœna in Chancery against William L. Walls, Attorney-General of the State of Wyoming, Frank A. Little, prosecuting attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming.

And said Bill of Complaint is in words and figures as follows, to-wit:

2 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL & GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney-General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

To the Judges of the District Court of the United States for the District of Wyoming:

Midland Carbon Company, and Occidental Oil & Gas Company, respectively, corporations duly organized and existing under the laws of the State of Delaware, and respectively having their principal places of business at Wilmington, in said State, and respectively citizens of said State, bring this their bill against William L. Walls, a citizen and resident of the State of Wyoming, Frank A. Little, a citizen and resident of the State of Wyoming, and Robert D. Carey, a citizen and resident of the State of Wyoming, in their respective capacities hereinafter set forth,

And thereupon complainants humbly complain and say:

First. That at all the times hereinafter set forth both complainants were and are respectively corporations duly organized and existing under and by virtue of the laws of the State of Delaware, having their principal place of business respectively in Wilmington in said State, and respectively citizens of said State of Delaware.

That the defendant Robert D. Carey is a citizen and resident of the State of Wyoming, and is the Governor of said State, and has his official residence in the City of Cheyenne, State of Wyoming. That the defendant William L. Walls is a citizen and resident of the State of Wyoming, and is the Attorney-General of the State of Wyoming, and is pursuant to Section 145 of the Compiled Statutes of Wyoming the officer charged with the prosecution of criminal actions and actions for penalties brought on behalf of said State, and the legal adviser of the several prosecuting attorneys in the respective counties, and has his official residence in the City of Cheyenne, State of Wyoming; and that the defendant Frank A. Little is the prosecuting attorney of the County of Big Horn, and is a citizen and resident of the State of Wyoming, and resides in the Town of Lovell in said State.

Second. That the jurisdiction of this Honorable Court depends (1) upon the diversity of citizenship of the parties complainant and defendant as hereinbefore alleged and (2) upon the assertion of a claim that an act of the legislature of the State of Wyoming, entitled Chapter 125 of the Session Laws of 1919, and hereinafter specifically set forth, deprives complainants, and each of them, of their property without due process of law, denies to complainants, and each of them, the equal protection of the laws, impairs the obligation of certain con tracts to which complainants are parties and which were
3 made before the enactment of said statute, as hereinafter alleged, and violates the Constitution of the United States and particularly the provisions of Article I, Section 10 and the provisions of the Fourteenth Amendment thereof.

This is a suit in equity arising under the Constitution and laws of the United States in which the matter in controversy exceeds the sum or value of five thousand dollars, exclusive of interest and costs.

Complainants seek to enjoin the defendants and each of them from enforcing or attempting to enforce against the complainants the provisions and penalties of the aforesaid Chapter 125 of the Session Laws of 1919, of the Legislature of the State of Wyoming.

Third. That complainant Midland Carbon Company is engaged in the State of Wyoming in the manufacture of carbon black from natural gas, after the gasoline contained in said gas has first been extracted therefrom. On or about December 26, 1916, it duly complied with the laws of the State of Wyoming and was authorized to transact its said business in said State. Prior to the enactment of the said statute, said complainant erected, owned and operated, and now owns and operates, a factory for the manufacture of carbon black from natural gas, which factory is located about one and one-half miles distant from the town of Cowley, Big Horn County, in said State. Said factory consists of ninety (90) fire-proof factory buildings, constructed entirely of steel and iron, each building approximately one hundred and fourteen (114) feet long by twelve (12) feet wide, together with packing houses, warehouses, conveying and packing machinery, machine shops, railroad siding, tanks and other buildings, machinery, and equipment, extending over an area of

twenty-four acres. In the erection and construction of said factory, said complainant expended, prior to the enactment of said statute, over three hundred and seventy-five thousand dollars ($375,000).

Said factory is now and has been in actual and regular daily operation since October, 1917, and is wholly dependent upon a regular and constant supply of natural gas. Said factory, and its appliances and machinery, are specially designed and adapted for the manufacture of carbon black, by what is known as a continuous process, the gas flowing first through the absorbers of the gasoline plant, and then into the factory buildings or black houses, where it is consumed, the carbon black being removed from the channel plates by automatic scrapers, and being thence conveyed by conveying machinery to hoppers, whence it passes through boltes, and is conveyed to the packing house and compressed by special packing machinery into double bags for shipment. The said factory and its equipment can be used for no other purpose than the manufacture of carbon black. At said factory there is produced daily approximately thirteen thousand (13,000) pounds of merchantable carbon black, which is sufficient for the manufacture of one hundred and seventeen thousand (117,000) pounds of printing ink. From the same gas consumed to make said black, there is first extracted approximately sixteen hundred (1,600) gallons per day of high-gravity gasoline.

Fourth. That said product known as carbon black is an amorphous form of carbon possessing the properties of lightness, softness and extraordinary strength of color. It is produced only by burning natural gas in contact with a metallic surface. It is and has been for over forty years a well-known and staple commodity, of which more than forty million pounds are now annually manufactured, marketed and sold in the United States, and which is highly useful and essential to many arts and industries. Its production is vitally important and necessary to the publication of books and newspapers, since it is universally used, mixed with oil, to make printing inks, many millions of pounds being annually required for this purpose alone. Carbon black is also generally employed throughout the United States for the manufacture of typewriter ribbons, carbon papers, stove polishes, paints and varnishes, phonographic records, electrical compositions, shoe polishes, black leather, crayons, carriage cloths, and other articles of general utility and value. When used as an ingredient of rubber compounds, carbon black possesses the property of materially increasing the tensile strength and durability of rubber, and it is consequently very extensively used to the amount of many millions of pounds per year in the manufacture of automobile tires, aeroplane tires and solid tires for trucks. This product has also proved of the highest usefulness as a war material, having been extensively employed in the manufacture of tires for gun carriages, ammunition trucks and aeroplanes, in the manufacture of gas masks, in camouflage, and for other military purposes. No form of carbon or black possessing the same properties and wide variety of uses can be commercially manufactured from any material or substance other than natural gas.

The consumption of natural gas for the manufacture of carbon

black is and has been for many years a well-known, recognized and legitimate method of using natural gas. Numerous factories for such manufacture have been erected and operated by many persons, firms and corporations during the past forty years in the various states where natural gas is produced in substantial quantities, including the States of Pennsylvania, West Virginia, Kentucky, Ohio, Indiana, Louisiana, Oklahoma and Montana. In none of said states has the use of natural gas for carbon manufacture ever been at any time prohibited, restricted or limited in any manner.

Said industry originated in the State of Pennsylvania about the year 1864, and has since been continuously prosecuted. By creating a market for gas otherwise unsalable, it has encouraged the production and conservation of gas, caused the drilling of gas wells and laying of pipe lines, been the means of first supplying natural gas to numerous towns and communities, and materially contributed to the development of the gas resources of the country. In connection with such manufacture, new and improved appliances and processes have from time to time been invented, devised and perfected, investments of capital to the extent of many millions of dollars have been made in factories, machinery, pipe lines and equipment, employment has been furnished to thousands of persons in the production, sale and distribution of said product, and the manufacture of carbon black from natural gas has become an established business, the curtailment or destruction of which cannot be accomplished without depriving the public of a product of great utility and value, causing serious detriment to all manufacturers and users of the articles hereinbefore enumerated, and working incalculable harm to all printers, publishers and readers of books, periodicals, and newspapers.

Fifth. That said Midland Carbon Company has constructed and equipped its said factory in accordance with the most improved and modern designs, and uses therein the best and most economical process, equipment and appliances known; that it operates the same with employes of experience and skill; that it allows no gas to escape into the air, that in order to promote economy in the use of gas it measures by recording meters all gas that is used in its factory, and regulates and controls the pressure thereof by regulators, and that it uses and consumes no more gas in its manufacturing operations than is consistent with the exercise of great care and skill; that it does not employ pumps, compressors or other means artificially to increase the volume of gas supplied to said factory but uses only such gas as by the natural laws of flowage flows from the wells supplying the same; that it uses the gas from no well to more than twenty-five per cent (25%) of the open flow capacity thereof; and that before being consumed in the manufacture of carbon black, all of said gas is first passed through a gasoline absorption plant located on complainant's said factory site, whereby large quantities of gasoline of exceedingly high gravity and superior quality are extracted and recovered from said gas by the best known processes and appliances and by the exercise of the highest care and skill.

5 Sixth. That the gasoline so produced from natural gas by the aforesaid method is of unique value for the reason that it

not only fulfils the rigid requirements of a motor fuel for airplanes in high altitudes, but it can also be blended with low-gravity naphthas to produce a desirable fuel for ordinary motors. Complainants further allege upon information and belief that the gasoline so produced in conjunction with said carbon factory was in large measure used by the Canadian Air Service during the war. That the operation of said gasoline absorption plant and recovery of said gasoline would be impossible if said carbon plant should cease to be operated, for the reason that gas cannot be sold to other users in said locality in sufficient quantities to render the extraction of gasoline therefrom commercially profitable.

Seventh. That the Occidental Oil & Gas Company, also complainant herein, owns the lands upon which are located the gas wells constituting the principal source of supply of said gasoline plant and carbon factory. It also constructed, owns and operates the pipe line by which said gas is conveyed from said wells to said factory. It also owns and takes into its possession said gas as produced from the wells, and delivers the same to the factory, receiving from the Eastern Fuel Company, which owns and operates the gasoline extraction plant, a royalty of one-half of the gasoline extracted therefrom. It also owns mineral leases covering twelve hundred (1200) acres of proven gas territory located within ten miles of Cowley. Its business is an integral and inseparable part of the business conducted by the complainant Midland Carbon Company. All its investments have been made with a view to said carbon business, and the use and revenue of its wells, pipe lines and other property is dependent upon the continuance of said carbon business, and both complainants are engaged in a joint enterprise, to-wit: the purchase and production of natural gas, the transportation of same to said factory, and the use of the same in the manufacture of gasoline and carbon black. On or about December 26, 1916, said Occidental Oil & Gas Company duly complied with the requirements of the laws of the State of Wyoming and obtained authority to transact business in said State. In the year 1917, said Company constructed a pipe line approximately six miles long for the transportation of natural gas from the wells hereinafter described to the aforesaid factory, and expended in the construction of said pipe line a sum in excess of sixty-five thousand dollars ($65,000). In the year 1918 said Company expended in the purchase of the ownership in fee of the lands upon which said wells are located, a sum exceeding thirty thousand dollars ($30,000).

Eighth. That on or about the 5th day of October, 1916, for the mutual consideration therein expressed, one John C. Howard, a citizen and resident of Salt Lake City in the State of Utah, entered into a certain contract in writing with the Utah-Wyoming Consolidated Oil Company, a corporation organized and existing under the laws of the State of Utah, a copy of which contract is attached hereto, marked "Exhibit A," and made part hereof. On or about the 2nd day of December, 1916, for the considerations therein expressed, the same parties entered into a further contract, a copy of which is hereto annexed, marked "Exhibit B" and made part hereof.

Thereafter, on or about the 6th day of January, 1917, in consideration of the sum of one hundred and two thousand three hundred dollars ($102,300), lawful money of the United States, said Howard, by assignments duly executed in writing, assigned and transferred to said Occidental Oil & Gas Company all his right, title and interest in, under and by virtue of the aforesaid contracts and each of them, together with certain oil and gas leases located in Sections 23, 24, 25 and 26, Township 56, North Range 97 West, Big Horn County, Wyoming, within ten miles distance of the towns of Cowley and Lovell. Upon such assignment being made, said Occidental Oil & Gas Company duly notified said Utah-Wyoming Consoli-
6 dated Oil Company of its acceptance of said contracts and its election to proceed with the performance of the same.

Thereafter, and on or about the 25th day of January 1917, in consideration of the promise or agreement of said Midland Carbon Company to pay to said Occidental Oil & Gas Company, the sum of one cent per thousand cubic feet for delivering said gas, said Occidental Oil & Gas Company by assignment in writing duly assigned and transferred to said Midland Carbon Company all right and title to the "dry gas" purchased under said agreement, retaining all rights to the "wet gas," to-wit, the gas as produced from the well before extraction of gasoline, and the right to extract the gasoline therefrom. Thereafter and on or about the 24th day of May, 1917, said Occidental Oil and Gas Company entered into a certain contract in writing with Eastern Fuel Company, for the term of fifteen (15) years from said date, whereby, in consideration of the promise of said Eastern Fuel Company to erect a gasoline absorption plant and to pay to said Gas Company a sum equal to one-half the value of the gasoline extracted from the said gas, said Gas Company agreed to permit said Eastern Fuel Company to extract the gasoline from said gas before delivering the same to the factory of said Midland Carbon Company.

Ninth. And your complainants further allege and show to this Honorable Court that their respective investments in lands, pipe ilnes, factories and equipment as hereinbefore alleged, were made prior to the enactment of said statute and on the faith of and in reliance upon the obligation and validity of the said several contracts hereinbefore alleged, and for the purpose of utilizing the gas from said wells, and that as soon as said factories were respectively completed, deliveries of gas were commenced and have ever since continued and still continue thereunder, and said contracts and each of them have been duly performed by all the parties and have remained and still continue in full force and effect.

Tenth. That on or about the 21st day of February, 1919, a purported act was passed by the Legislature of the State of Wyoming and on the 24th day of February, 1919, approved by the Governor of said State, known and designated as Chapter 125 of the Laws of 1919, which said act is as follows:

Conservation of Natural Gas.

An act for the protection and conservation of the supply of natural gas of the State of Wyoming, prohibiting the waste and wasteful use of natural gas through the burning or consumption thereof for the manufacture or producing of carbon or other resultant products therefrom, prohibiting the taking, using, sale or other disposition of natural gas from gas wells for such purposes and providing penalties for the violation of such Act.

Be it Enacted by the Legislature of the State of Wyoming:

Section 1. The use, consumption or burning of natural gas taken or drawn from any natural gas well or wells, or borings from which natural gas is produced for the products where such natural gas is burned, consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas well or source of supply is located within ten miles of any incorporated town or industrial plant.

Section 2. No person, firm or corporation, having the possession or control of any natural gas well or wells, except as herein provided, or borings from which natural gas is produced, whether as a contractor, owner, lessee, agent or manager, shall use, sell or otherwise dispose of natural gas, the product of any such well or wells
7 or borings for the purpose of manufacturing or producing carbon or other resultant products from the burning or consumption of such natural gas, without the heat therein contained being fully and actually utilized for other manufacturing purposes or domestic purposes.

Section 3. Any person, firm or corporation violating any of the provisions of this Act shall be guilty of a misdemeanor and shall be punished by a fine of not less than One Hundred Dollars ($100) or more than One Thousand Dollars ($1,000) for each offense and each and every day in which any person, firm or corporation shall violate any of the provisions hereof shall constitute a separate offense hereunder and subject the offender to the penalty hereby provided.

Section 4. This Act shall take effect and be in force after September 30th, 1919.

That said Act was read for the first time in said Legislature the 12th day of February 1919, and passed on the 21st day of February, 1919, without according to the complainants or to the public any hearing or opportunity to present any facts relating to said industry.

Eleventh. That the towns of Cowley and Lovell are incorporated towns. The wells located on the lands owned by the Occidental Oil & Gas Company and constituting the source of supply of gas under the aforesaid contracts, and from which all the gas supplied to said carbon

factory is produced, are situated in Section 33, of Township 56 North, Range 97 West, and are distant by air line about six miles from the town of Cowley, and approximately eight and one-half miles from the town of Lovell. All of the gas lands owned and leased by the Occidental Oil & Gas Company, and all of the lands comprised and included in said contracts designated as Exhibit "A" and "B" are within a distance of ten miles by air line from one or the other of said towns.

Twelfth. Complainants allege that the aforesaid Act of the Legislature of the State of Wyoming violates the Fourteenth Amendment of the Constitution of the United States in that it deprives the complainants, and each of them, and others, of liberty and property without due process of law, and denies to complainants and each of them, and to others, the equal protection of the laws, and that said Act violates the provisions of Section 10, Article I of the Constitution of the United States, in that it impairs the obligation of the aforesaid contracts and each of them.

Thirteenth. That there is no just occasion or reasonable necessity for such destruction of the contractural and property rights of these complainants as must necessarily result from carrying said Act into effect. That there is no person, firm or corporation engaged in the manufacture of carbon black from natural gas in the entire state of Wyoming except said Midland Carbon Company, and no one, to the best of your complainants' knowledge, has ever been engaged in said State in said manufacture, except one other manufacturer who operates or has operated one small factory in the vicinity of Lovell. The population of Cowley does not exceed one thousand (1000) persons. The population of Lovell is about twelve hundred (1200). Complainants use the gas from only four (4) wells, most of their supply being drawn from two (2) wells. The full capacity of the gas wells already actually drilled within a radius of ten (10) miles of the towns of Cowley and Lovell is one hundred and seventy-seven million (177,000,000) cubic feet per day, or at the rate of sixty billion (60,000,000) cubic feet per year. The citizens of Cowley who never had natural gas in their homes, until the complainant's pipe line was built, are now supplied with natural gas by the complainants. The total consumption of natural gas in said town of Cowley for the twelve months ending August 1, 1919, was 5,844,877 cubic feet, or less than one one-hundredth of one per cent of the capacity of
8 the gas wells already drilled within said ten mile radius. The total population of the County of Big Horn is about twelve thousand (12,000) persons, who are chiefly engaged in agricultural pursuits. There are in said County no towns of over two thousand (2,000) inhabitants, and very few manufacturing or industrial plants. The principal towns in said County, to wit, Basin, Byron, Cowley, Greybull and Lovell, are supplied with natural gas for domestic use. These complainants further allege upon information and belief that there exist in the region known as the "Big Horn Basin", underlying the counties of Big Horn, Washakie, Park, Fremont and Sweetwater, a vast store and reservoir of natural gas, contained in a series of six (6) strata of great depth and thickness and that there

have been drilled into said strata a considerable number of gas wells which if allowed to flow to their full capacity, are capable of producing over six hundred and fifty million (650,000,000) cubic feet of natural gas per day. That by the drilling of said wells many thousand acres have been proven as productive gas territory, sufficient in extent to furnish locations for hundreds of additional wells. So far from there being any shortage or indication of shortage in the supply of natural gas in said region or in the State of Wyoming for domestic or industrial use, your complainants allege the fact to be that the total demand for and consumption of natural gas in said region does not exceed thirteen million cubic feet per day, and there has already been developed an enormous surplus of gas over and above all demands and requirements of the citizens or industrial plants of said state for many years to come, that many wells are already capped and shut in because of the production of natural gas in said region far exceeding the demand therefor, and that only a very small fraction of the potential production of natural gas in said county, region or State is or can be marketed, used or sold for purposes other than carbon manufacture. Your complainants further respectfully allege and show that they have never interfered with or prevented the supply of natural gas to anybody, but on the contrary have themselves provided and are now providing all the natural gas used in the town of Cowley, and that the wells located on the lands owned by the Occidental Oil & Gas Company and constituting the source of supply of said carbon factory, were drilled several years prior to 1917, but were never used as a source of supply by any industrial or domestic consumer until the complainants found means to utilize in the same in their manufacturing business.

Fourteenth. Complainants further allege that the consumption of natural gas in the manufacture by the best known processes of two products so generally useful and serviceable to mankind as carbon black and gasoline is neither a waste nor a wasteful use of such gas. That by the processes and devices employed at said carbon factory there is obtained from each thousand cubic feet of natural gas consumed, one and three-quarters pounds of carbon black and over two-tenths (.2) of a gallon of high-gravity gasoline. That said quantity of black is sufficient to print five hundred copies of an octavo book of three hundred pages, or four thousand copies of a newspaper of sixteen pages. That the fair market price and value of said products is greatly in excess of the market price and fair value of the gas consumed in the manufacture thereof. That said carbon black is of the fair market value of ten (10) cents per pound, and said gasoline is of the fair market value of twenty (20) cents per gallon, and that the combined value of the products so obtained from each thousand cubic feet of gas consumed at said factory is in excess of twenty-one (21) cents. That the fair market price of natural gas as produced at the wells in Big Horn County, Wyoming, and the price to such manufacturing establishments as use gas in substantial quantities is far less than the fair market value of said products, and that, according to the latest statistics, compiled by the United States Geological Survey, the average price of gas delivered to industrial

consumers in the States of Wyoming and Colorado is eleven and thirty-six hundredths cents (11.36) per thousand cubic feet, and in the entire United States is ten and twenty-one one-hundredths (10.21) cents per thousand cubic feet.

9 Fifteenth. Complainants further allege that no machinery or processes of any kind have ever by the highest skill been devised or known to the world whereby the heat contained in natural gas or any other fuel can be fully applied and utilized in the production of light, power, or other products than heat itself, but on the contrary by all burners, machines, engines, industrial appliances and processes known to mankind for the production of manufacturing-power or light by the burning or consumption of natural gas, coal, coke and other fuels, the greater proportion of the heat contained in said gas or other fuels, ranging from sixty to more than ninety-nine per cent thereof is not transformed into light or power, but is wholly sacrificed, dissipated and lost.

Such failure to utilize fully the heat contained in natural gas being inherent in and attendant upon the burning or consumption of said gas for all other resultant products thereof, whether light, power or carbon black, does not constitute waste or wasteful use. The application of the heat generated in said carbon factory to domestic heating purposes is wholly impracticable and impossible, on account of the distance of said factory from any town or city, and the physical impossibility of transporting or conveying heat for such a distance without the entire loss thereof by radiation. Complainants further allege that neither in the manufacture of carbon black by burning natural gas, nor in the manufacture of lamp black by burning oil, nor in the manufacture of bone black by burning bones with coal as a fuel, as said businesses have respectively long been conducted in the United States, in England and in Europe, has the heat ever been utilized for domestic or other manufacturing purposes.

Sixteenth. That neither of your complainants owns or controls any gas lands or wells or any natural gas that is situated within a distance of more than ten miles from some incorporated town or industrial plant, nor is there to the best of their knowledge any gas well so situated within a distance of fifty (50) miles from said carbon factory, and that if by the enforcement of said statute they are prevented from using the natural gas produced from the wells within a radius of ten miles of any incorporated town or industrial plant, it will be necessary to discontinue altogether the operation of said wells, pipe lines, carbon factory and gasoline works, and thereby the business, profits and income of the complainants respectively will be wholly ruined and destroyed, the aforesaid factory and pipelines will be made useless and wholly deprived of value, except for the salvage value of the materials thereof, the profitable contracts heretofore entered into for the purchase and use of said natural gas will be rendered valueless and void, the large sum invested in the acquisition of said contracts will be totally lost, and the complainants and each of them, will thereby suffer irreparable loss and ruin.

Seventeenth. Your complainants further respectfully allege that said statute is not a true statute of conservation but is arbitrary and

oppressive, and deprives them respectively of the equal protection of the laws;

(1) In that it enables any third person who may by design or accident locate an industrial plant within ten (10) miles in any direction from any gas field, to limit and abridge in an important respect the use, sale and disposition of natural gas by the owner thereof who has reduced the same to possession, and to render criminal manufacturing operations which would otherwise be innocent, thereby serving a private not a public purpose and making the selection of those guilty of violating said act, depend not upon any difference in their delinquency, but upon the unrestrained choice and volition of any third person engaged in industrial pursuits.

(2) In that it arbitrarily classifies persons engaged in the business of carbon manufacture, even though their factories may be located in the identical place and the heat generated therein be consequently of equal utility and value, by allowing the one who obtains gas from a source of supply located more than ten miles distant from any incorporated town or industrial plant to consume the same without utilizing the heat, while it renders criminal the identical practices on the part of the other, who derives gas from a source less than ten miles distant, thus determining those to be subjected to the penal provisions of the act by an arbitrary selection without regard to any difference between their delinquency and that of those whom it leaves unaffected.

(3) In that it discriminates between owners or lessees of gas wells, allowing to some the unlimited acquisition, use and sale of natural gas from the common reservoir for a purpose declared by said act to be wasteful, while forbidding others to take, use or sell gas from the common reservoir for the identical purpose, thereby being utterly contrary to the true principle of conservation of natural gas, which is to secure to each of the common owners of the gas a proportionate acquisition thereof.

(4) In that it penalizes the owners and lessees of the gas wells therein described on account of the use or manner of use which the purchaser of natural gas sold and delivered by them, and which has ceased to be their property, may make of said natural gas.

(5) In that it renders the lawfulness of the use or sale of natural gas for carbon manufacture, without heat utilization, from a well located within ten miles of a town wholly dependent upon whether or not said town is incorporated, such use or sale being criminal, if such town be incorporated, but innocent if such town, though of equal or greater population, be unincorporated, thereby making the selection of those penalized by said act depend upon a fact bearing no relation to their delinquency.

(6) In that no limitation contained in said act as to carbon manufacture is based upon or bears any relation to the extent or adequacy of the supply or to the extent of the requirements of any town or

other industrial plant, or to the quantity of gas produced, used or sold for carbon manufacture.

(7) In that, while the use of every fuel for other manufacturing purposes is attended by enormous losses of the heat contained in said fuel, it imposes only upon certain carbon manufacturers the utterly unreasonable requirement that their manufacturing business must cease unless the heat contained in said fuel shall be fully utilized for other manufacturing purposes.

(8) In that under guise of regulation, its restrictions are so framed as to abolish, ruin and destroy complainants' existing business, while leaving it open to others to engage in carbon manufacture, without saving the gasoline and without any utilization of heat whatsoever elsewhere in the State of Wyoming.

Eighteenth. Complainants further aver upon information and belief that the defendants intend and have stated that they intend to cause proceedings to be instituted in the name of the State of Wyoming against the complainants and each of them for the violation of said Act, if any gas from said wells is consumed by said factory after said Act takes effect.

Nineteenth. That the penalties imposed by said Act are harsh, unreasonable and confiscatory in character and amount, and are of such a nature and amount as would impose on one disputing the validity of said Act, and not complying therewith for the sake of obtaining a judicial determination in regard thereto, a possible penalty of one thousand dollars ($1,000) for each separate daily violation of the Act or of any of its provisions. Not only would each day's operation of said factory constitute a separate offence,
11 but said possible penalty of one thousand dollars ($1,000) per day is by the terms of said Act imposed also upon the owner, contractor, lessee and manager in possession or control of each well from which the gas used in such manufacture is derived.

Such penalties are designed to coerce the complainants to acquiesce in said Act, and to deter them from seeking and obtaining a judicial determination of the validity thereof, on account of the risk of ruin in the event of an eventual adverse determination.

Complainants are advised by counsel and aver that they have no adequate remedy at law and that there is no remedy except in equity to test adequately and completely the legality and constitutionality of said Act, and that in the absence of such remedy in equity the penalties imposed by said Act would be unreasonable and confiscatory, and the enforcement thereof would deprive complainants of their property without due process of law, and impair the obligation of the aforesaid contracts.

A further reason why this court should take jurisdiction is to avoid multiplicity of suits which would be instituted in the name of the State of Wyoming for daily violations of said Act unless the enforcement thereof shall be stayed by this Court till final determination of the legality and constitutionality thereof.

That said carbon factory buildings are constructed of iron and

steel, are operated continuously, and are kept at all times warm and dry by means of the heat generated in said manufacture. There is no means of heating them except by the heat so generated. If they should cease to be operated and remain unused and unheated, said buildings and the pipes, plates, burners and equipment therein contained would at this season of the year rapidly corrode, rust and deteriorate and this would be an additional source of injury and damage to the complainant, beyond the loss sustained by the complete suspension of said manufacturing business, inability to fill orders, and loss of the profits arising from the manufacture of said gasoline and carbon black.

Wherefore these complainants pray:

(1) That it be adjudged and decreed that said act is illegal, null and void as to these complainants because in contravention of the Constitution of the United States and particularly of Article I, Section 10 and the Fourteenth Amendment thereof;

(2) That it be adjudged and decreed that complainants have no adequate remedy at law for the injury that would result to their business and property from enforcement of said act and that said injury would be irreparable;

(3) That the complainants be granted writs both of interlocutory and permanent injunction restraining the defendants, and each of them, and any person claiming to act under and by virtue of the authority of said statute from in any way enforcing or attempting to enforce said statute or any provision thereof, against the complainants, and their respective managers, agents and servants, and that under and by virtue of the provisions of Section 265 of the Judicial Code a temporary restraining order be forthwith granted against the defendants restraining them from enforcing said act, as aforesaid, until this Honorable Court shall determine in due course whether an interlocutory injunction shall be granted pendente lite;

12 (4) For such other and general relief as by the Court may be deemed just and equitable.

MIDLAND CARBON COMPANY,

By ——— ———.

Attest:

F. F. CURTZE,
Vice-President.

[SEAL.]

Attest:
REID L. CARR,
Secretary.

OCCIDENTAL OIL & GAS COMPANY,
By ——— ———,
F. F. CURTZE,
Vice-President.

[SEAL.]
REID L. CARR,
Secretary.

HERBERT V. LACEY,
JOHN W. LACEY,
Solicitors and of Counsel for Complainants.

STATE OF PENNSYLVANIA,
County of Erie, ss:

Personally appeared before the undersigned, F. F. Curtze, vice-president of the complainants in the above cause, who being duly sworn as to the truth of the allegations made in the above bill, says that he has read the foregoing bill and knows the contents thereof, and that the same is true of his own knowledge except as to matters therein stated on information and belief and as to those matters he believes it to be true. That the reason why this verification is made by him and not by complainants is that complainants are respectively corporations existing under the laws of Delaware, and he is an officer, to wit, the vice-president thereof.

F. F. CURTZE.

Subscribed and sworn to before me this 17 day of September, 1919.

[SEAL.]

J. E. HUNT,
Notary Public.

My commission expires Feb. 5, 1921.

STATE OF PENNSYLVANIA,
Erie County, ss:

I, Ross H. Cutter, Clerk of the Court of Quarter Sessions in and for the County aforesaid, the same being a Court of Record, do certify that J. E. Hunt, Esq., whose name is subscribed to the certificate of proof, or acknowledgement of the annexed instrument, was at the time of the taking such proof, or acknowledgment, a Notary Public of the Commonwealth of Pennsylvania duly authorized to take acknowledgments of deeds, administer oaths, etc., in and for said County, duly commissioned, sworn and qualified, and to all whose acts as such full faith and credit are due, that the same is executed agreeably to the laws of Pennsylvania, and further that I

am acquainted with the handwriting of said J. E. Hunt, and verily believe that the signature thereof is genuine.

In testimony whereof, I have hereunto set my hand and affixed the seal of the said Court at Erie, the 17 day of Sept., A. D. 1919.

[SEAL.] JOSH H. CUTTER,
Clerk.

13 EXHIBIT A.

Agreement.

This agreement, made in duplicate this 5th day of October, 1916, by and between the Utah-Wyoming Consolidated Oil Company, a corporation of the State of Utah, hereinafter referred to as the Utah Company, party of the first part, and John C. Howard, of Salt Lake City, Utah, party of the second part.

Witnesseth: That

Whereas, the said Utah Company desires to develop its natural gas properties hereinafter described, and to commercialize the same, and to that end desires that the party of the second part shall erect and maintain certain pipe lines and plants for the purpose of extracting gasoline from said natural gas; and

Whereas, the party of the first part desires to give to the party of the second part an opportunity to investigate the practicability of installing a plant for the extraction of the gasoline from said gas, and a plant for the making of carbon black, and any other properties and substances that may be manufactured from said gas after the gasoline has been removed, and to give said party of the second part sufficient time in which to investigate the title of the party of the first part to the hereinafter described land; and

Whereas, the party of the second part desires to secure sufficient time in which to make said investigation and if said undertaking appears to be profitable to erect and maintain said pipe lines and said plants for the purposes aforesaid, and to that end desires to secure an option on the purchase of said natural gas.

Now, therefore, in consideration of One ($1.00) Dollar paid by the party of the second part to said party of the first part, the receipt of which is hereby acknowledged, and the surrender and cancellation by said party of the second part of a certain agreement heretofore made by said party of the first part with one Frederick J. Pack, which agreement has been assigned to said party of the second part; and in further consideration of the covenants and agreements hereinafter expressed, undertaken and agreed to be performed by said party of the second part, the said party of the first part hereby gives, grants and conveys to the party of the second part an option for the period of ninety (90) days for the purchase of certain quantities of natural gas, as hereinafter stated, produced from the following described tracts of land in the possession of the party of the first part, to-wit:

Approximately the southwest ten (10) acres of the southwest one-

quarter of the northeast one-quarter of Section 33; the north one-half of the southwest one-quarter of Section 28; the southeast one-quarter of the northeast one-quarter of Section 29; and an unpatented Placer Mining Claim including the south one-half of the northwest one-quarter of Section 33; all in Township 56 North, Range 97 West, of the Sixth P. M., Big Horn County, Wyoming.

The party of the second part shall have the period of ninety (90) days from the date hereof in which to make necessary field tests for the purpose of determining the practicability of extracting gasoline from said natural gas, and to investigate the title of said party of the first part to said land and premises above described. In case said party of the second part decides to exercise said option herein granted, he shall notify said party of the first part in writing of his election on or before the expiration of ninety (90) days from the signing of this agreement. Said party of the second part agrees to enter at once upon the making of said tests and the examination of said title.

14 In case said option is exercised by said party of the second part, the parties hereto agree as follows, to-wit:

1. The party of the second part shall within one hundred twenty (120) days from the date hereof, order material for the construction and equipment of the pipe line and gasoline plant hereinafter mentioned, and within eighteen (18) months from the date hereof, he will cause said plant to be in operation. It being understood and agreed that in the event of said second party's failure to do the things in this paragraph specified and at the times therein stated, then this agreement shall become null and void and of no further effect as to either party hereto.

2. The Utah Company agrees to sell to the party of the second part all or any part of 25,000,000 cubic feet of wet gas daily for a period of twenty years from date, unless prior to the expiration of said twenty years the supply of natural gas from said land shall have become exhausted.

3. It is mutually agreed that the said 25,000,000 cubic feet of wet gas, mentioned in section two, shall be used by the party of the second part for the sole and only purpose of extracting the gasoline content, and after the said party of the second part shall have extracted the gasoline content, the gas remaining, designated herein as "dry gas," excepting sufficient to use in the gasoline plant for power, heat and lighting purposes, shall be the property of the Utah Company.

4. The price to be paid by the party of the second part for the wet gas shall be one-fifth or 20% of all the gasoline extracted from said wet gas, when the gasoline extracted equals two (2) quarts or less per thousand cubic feet, and one-fourth or 25% when the gasoline extracted is more than two (2) quarts per thousand cubic feet; gas to be calculated at three (3) pounds' pressure above the atmospheric pressure at sea level. The Utah Company may at its option, receive the royalty payment either in cash or gasoline, the latter to be de-

livered to the railroad, free of charge by the party of the second part, into tanks furnished by the Utah Company.

5. After eighteen months from the date the party of the second part will use in the gasoline plant or pay for a daily average of not less than 4,200,000 cubic feet of wet gas for each year during the life of this contract. Payments to be made monthly according to the terms of this agreement as stated in section thirteen.

6. Failure of the second party to use or to pay for a daily average of not less than 4,200,000 cubic feet of wet gas for the extraction of gasoline for any one year after eighteen months from date, will automatically terminate that part of this agreement pertaining to wet gas.

7. The Utah Company agrees to sell to the party of the second part all or any part of 15,000,000 cubic feet of dry gas daily for a period of twenty years from the date hereof, unless prior to the expiration of the said twenty years the supply of natural gas from said wells shall have become exhausted. It is mutually agreed that in case the Utah Company shall, for any reason whatsoever be unable to supply the said 15,000,000 cubic feet of dry gas daily, it may and shall furnish the same number of cubic feet of wet gas daily in lieu thereof, provided that the supply of natural gas from said land shall not have become exhausted.

8. The price to be paid for the dry gas shall be one cent per thousand cubic feet calculated at three pounds' pressure above the atmospheric pressure at sea level. The dry gas obtained from the gasoline plant may be used by the party of the second part for whatsoever purpose he may choose. It is understood, however, that if the party of the second part shall sell any of the wet gas furnished in lieu of the dry gas (as provided for in section seven) for power, light or heating purposes, then in that event the party of the second part shall pay two cents per thousand cubic feet for all wet gas so used. However, it is further understood and agreed between the parties hereto that in the event said party of the second part shall go to the expense of and erect and operate a gasoline plant, then and in that event the said second party shall pay to the said party of the first part for all gas so sold, either wet or dry, only one cent per one thousand cubic feet.

9. After eighteen months from date, the party of the second part will use or pay for a daily average of not less than 4,200,000 cubic feet of dry gas for each year during the life of this contract. Payments to be made monthly according to the terms of this agreement as stated in section thirteen.

10. Failure of the party of the second part to use or to pay for a daily average of not less than 4,200,000 cubic feet of dry gas for any one year after eighteen months from date, will automatically terminate that part of this agreement pertaining to dry gas.

11. It is understood that the provisions of this agreement relating to the use of wet gas for the extraction of gasoline, and the provisions relating to the use of dry gas, are separate and distinct, and that a forfeiture of the one shall not endanger the validity of the other.

12. Inability of the Utah Company, through the operations of the courts or other legal procedure, to supply any of the quantities of gas herein stated, shall in no way render the Utah Company liable in damages to the second party.

13. The amount of gas delivered to the party of the second part shall be determined upon the first day of each and every month during the term of this agreement, by the reading of a standard meter or meters, furnished by the party of the second part; and payments shall be made by the party of the second part at his office within ninety days after said readings. All meters for measuring wet gas shall be situated on the premises above described, and meters for measuring dry gas shall be situated on the premises occupied by the gasoline plant.

14. It is understood by the party of the second part that at the present time the production of natural gas on the land of the party of the first part, described herein, is limited to less than 25,000,000 cubic feet per day, but as an inducement to said party of the second part to construct such plant on the condition that said party of the second part notify the said party of the first part within sixty days from the date hereof, that he, the said party of the second part, is in a position and intends to construct said plant, said party of the first part agrees to forthwith drill for a supply of gas on said land and with that end in view, will drill two additional wells on said land to the depth of the said therein that produce natural gas, said wells to be drilled one after the other, work thereon, to be continuously prosecuted from the first day of April, 1917, until completed. It is understood by both parties hereto that if the first well drilled by the party of the first part produces, at the time of its completion, sixty million (60,000,000) cubic feet of gas daily, then in that event the party of the first part will not be required to drill the second well.

15. It is understood and agreed that after the first well has been drilled, if there is not sufficient natural gas being produced upon said land to furnish a supply to said party of the second part of 25,000,000 cubic feet daily, then said party of the second part shall have the right to drill such other well or wells as he may desire upon said land for the purpose of increasing the supply of natural gas, until such time as it is apparent that the supply of gas from said field has become exhausted, and the cost of said wells to said party of the second part shall be credited to him by said party of the first part and treated as an offset to an equal amount as same become due from said party of the second part to said party of the first part on account of gas furnished by said party of the first part as herein stipulated.

The term "exhausted" as used in this section shall be interpreted to mean that the gas obtained from wells would not warrant further drilling.

16. Said party of the first part does hereby give and grant unto the said party of the second part the right and privilege to construct, place, use and operate upon said land, buildings, machinery, tools, retorts, pipe line and all other appliances convenient and necessary in the use of said gas. It is further stipulated and agreed that if at any time after the construction and installation of said buildings and equipment, he, the said party of the second part, shall find the operation thereof unprofitable, or if for any other reason he decides to discontinue his operation he may do so by giving to said party of the first part a notice in writing of such intention and thereupon this contract or agreement shall be at an end and of no further force or effect as to either party hereto, excepting that said party of the second part shall have the right to remove from said property all buildings, machinery, retorts, and any and all improvements of any nature whatsoever placed by him or through him upon said premises.

17. The term "wet" gas, as used in this agreement, shall be interpreted to mean natural gas as it comes direct from the wells. The term "dry" gas, as used in this agreement, shall be interpreted to mean natural gas after the gasoline content has been removed by any commercial process adapted to the recovery of gasoline content.

18. The party of the second part shall at all times during the life of this agreement, have the first right to purchase any and all gas produced on said premises to the extent of the respective amounts herein set forth.

19. It is mutually agreed that neither of the parties hereto shall be liable for any damages or delays occasioned by or arising from strikes or other labor troubles, invasion, insurrection, riot, fire, earthquake, flood, war, or total or partial failure of the railroad service, or other means of transportation, or any act of God, or other event, over which the parties hereto have no control.

20. It is understood and agreed that the parties hereto have the right to assign all or any part of their interest in this agreement, and each and every clause and covenant of this agreement shall extend to such assigns and to the heirs, successors, executors and administrators of all parties hereto.

21. The party of the second part agrees to install the pipe line and gasoline plant in an efficient engineering manner and to operate and maintain the same so as to prevent all reasonably avoidable loss or waste of gas or gasoline.

In witness whereof, the party of the first part has by its proper officers, duly authorized by resolution of its Board of Directors, and the party of the second part has in his own proper person acknowl-

edged this instrument in duplicate the day and year first above written.

UTAH-WYOMING CONSOLIDATED OIL COMPANY,

(Signed) By W. H. LIVINGSTON,
Vice-President;

[CORPORATE SEAL.]

H. E. HAVENOR,
Secretary,
Party of the First Part.

JOHN C. HOWARD,
Party of the Second Part.

17 STATE OF UTAH,
County of Salt Lake, ss:

Personally appeared before me this 9th day of October, —, D. H. L. Livingstone and H. E. Havenor, who certified that they are Vice-President and Secretary of the Utah-Wyoming Consolidated Oil Company, and acknowledged to me that they signed, sealed and delivered the foregoing instrument of writing for the said Utah-Wyoming Consolidated Oil Company and that said agreement is covered by resolution passed by Board of Directors of said Utah-Wyoming Consolidated Oil Company and that said resolution has been duly inscribed on the minute books of said corporation.

Given under my hand and seal this 9th day of October, A. D. 1916.

(Signed) W. S. CORBETT,
Notary Public.

STATE OF UTAH,
County of Salt Lake, ss:

Personally appeared before me this 9th day of October, 1916, John C. Howard, personally known to me, who acknowledged that he signed the foregoing instrument of writing.

Given under my hand and seal this 9th day of October, A. D. 1916.

(Signed) W. S. CORBETT,
Notary Public.

18 EXHIBIT B.

Agreement.

This Agreement entered into this 2nd day of December, 1916, by and between the Utah-Wyoming Consolidated Oil Company, a corporation of the State of Utah, first party, and John C. Howard, of Salt Lake City, Salt Lake County, State of Utah, second parrty,

Witnesseth: That

Whereas, the parties hereto did on the 5th day of October, 1916, enter into a certain agreement in writing whereby the first party sold

to the second party the right to purchase certain natural gas from certain lands situate in the State of Wyoming, more particularly described in said agreement of the 5th day of October, 1916; and

Whereas, the said first party has heretofore entered into a certain agreement on the 22nd day of July, 1915, with the Ohio Oil Company, a corporation of the State of Ohio, whereby the said Ohio Oil Company acquired certain rights in the oil and gas produced from lands hereinafter described on certain conditions, it being agreed between said first party and said Ohio Oil Company that all gas and oil extracted from said lands should be divided between the said first party and Ohio Oil Company, fifty per cent to each of said parties; and

Whereas, the said Ohio Oil Company is willing to relinquish its rights on the gas extracted from the said lands to the first party hereto upon the terms and conditions that the said first party hereto shall surrender to said Ohio Oil Company the oil rights in and to the following described lands, the same being part of the said lands described in said agreement of July 22nd, 1915, to-wit:

The West one-half (½) of the Northeast quarter (¼) of Section thirty-three (33), except ten (10) acres around the gas well drilled by the first party on the eighty acres above described, and which said ten acres is described in and is covered by said agreement of October 5th, 1916; also

The North one-half (½) of the Southeast quarter (¼) of Section thirty-three (33) Big Horn County, State of Wyoming,

and in further consideration of the payment to the Ohio Oil Company of the sum of Twenty Thousand ($20,000.00) Dollars; and

Whereas, the second party hereto desires to increase the acreage from which it can purchase gas above that described in said agreement of the 5th day of October, 1916; and

Whereas, the said second party is willing to loan to the first party the sum of Twenty Thousand ($20,000.00) Dollars in consideration of the second party receiving the right to purchase gas from the lands described in the next preceding recital in addition to the lands described in said agreement of the 5th day of October, 1916, subject to the terms and conditions of said agreement entered into on the 5th day of October, 1916, between the parties hereto; and

Whereas, the first party is willing to borrow from the second party the sum of Twenty Thousand ($20,000.00) Dollars with which to purchase said interest from the Ohio Oil Company, and to give to the second party the right to purchase gas from tracts described below.

It is, therefore, agreed that in consideration of the mutual
19 covenants, agreements, obligations and undertakings herein provided to be binding upon and to be performed by the parties hereto as follows, to-wit:

1.

That the first party hereby gives and grants to the second party, to the extent and on the terms and conditions of said agreement en-

tered into between the parties hereto, dated the 5th day of October, 1916, which said contract is hereby referred to and by reference made a part hereof, and right to purchase gas from the following lands in addition to those described in the agreement of the 5th day of October, 1916:

The West one-half (1/2) of the Northeast quarter (1/4) of Section thirty-three (33), except ten (10) acres around the gas well drilled by the first party on the eighty acres above described, which said ten acres is described in and is covered by said agreement of October, 1916; also

The North one-half (1/2) of the Southeast quarter (1/4) of Section thirty-three (33); also

The Northwest quarter (1/4) of the Northwest quarter (1/4) of Section twenty-eight, and the Northeast quarter of the Northeast quarter (1/4) of Section twenty-nine, all in Township 56 North, Range 97 West, all in Big Horn County, State of Wyoming.

2.

The second party hereby promises and agrees to loan to the first party the sum of Twenty Thousand ($20,000.00) Dollars to be used by the first party in the purchase by the first party from the Ohio Oil Company of all of said gas rights in said lands described in paragraph three of the preliminary recitals hereto.

3.

The first party hereby promises and agrees to repay said sum of Twenty Thousand ($20,000.00) Dollars together with interest at the rate of six per cent per annum to said second party by the delivery of gas from said lands above described in paragraph one or at the option of the first party, from the lands described in said agreement of the 5th day of October, 1916, entered into between the parties hereto, to the extent and upon the terms and conditions of said agreement dated the 5th day of October, 1916, or, at the option of the first party hereto, said repayment of said sum of Twenty Thousand ($20,000.00) Dollars and interest may be made by the first party in cash at any time in full or in part. The forfeiture of the rights of the second party by the terms and conditions of said agreement of October 5th, 1916, for non-performance or otherwise, shall not affect the duty and obligation of the party of the first part as to the repayment of said sum of Twenty Thousand ($20,000.00) Dollars in gas or at the option of the first party in cash as herein stated.

4.

It is expressly under-stood and agreed between the parties hereto that one-half of the value of the gas delivered from the lands described in paragraph one hereof, and also from the lands described in said agreement of October 5th, 1916, by the first party to the second party, shall be applied on said indebtedness of Twenty Thou-

sand ($20,000.00) Dollars, and the balance of one-half of the value of said gas shall be paid by the second party to the first party in cash, as provided in said agreement of the 5th day of October, 1916; the intent and purpose of this provision being that payment of one-half of the value of said gas shall be made in cash to the end that the first party may have funds with which to carry on the operations of said corporation.

20

5.

To secure the re-payment of the said sum of Twenty Thousand ($20,000.00) Dollars in gas or in cash at the option of the first party as aforesaid, the said first party shall endorse and assign to said second party the fifty per cent interest in the gas rights in the land above described in paragraph three of the preliminary recitals hereto which the Ohio Oil Company shall surrender to said first party upon the payment of said sum of Twenty Thousand Dollars ($20,000.00), which said assigned rights shall be held by the second party as security for the re-payment of said Twenty Thousand ($20,000.00) Dollars by said first party. Upon payment of said Twenty Thousand ($20,000.00) Dollars by delivery of gas or in cash at the option of the first party as aforesaid, said assignment shall be returned to the party of the first part by the second part. The first party hereto shall at all times have the sole and undisputed possession of said lands, including the period while said assignment is held as security by the second party.

6.

To secure the second party in the possession of the rights in and to the gas under said agreement of the 5th day of October, 1916, and under this agreement, the first party agrees that in the event it shall not have and performed the work necessary to keep the titles and oil and gas leases on all of said lands described in said agreement of the 5th day of October, 1916, in full force and effect, and also the lands described in paragraph three of the preliminary recitals of this agreement, that the second party hereto shall have the full right and privilege at any time within the period of sixty (60) days before the date on which the oil and gas leases owned by said first party on any of said lands will expire, to enter upon and perform all work necessary to keep and preserve the title of said first party in and to the gas, oil and mineral rights in said lands, represented by said leases, in full force and effect. The said first party agrees that all expenses incident to the performance of said work necessary to keep said titles in full force and effect shall be repaid to said second party in gas produced by wells drilled in so protecting the individual tracts, or, in cash at the option of the first party.

7.

It is agreed between the parties hereto that said first party shall not have the right to tender or deliver gas in payment of said sum

of Twenty Thousand ($20,000.00) Dollars until the second party shall be fully prepared to receive and use or dispose of the same.

8.

It is understood and agreed between the parties hereto that this agreement shall in no way affect the validity or binding force of the agreement of October 5th, 1916, and shall not extend or reduce the amount of gas that may be purchased by the second party as stated in said agreement of October 5th, 1916, but shall be construed only as increasing the area from which said amount of gas may be developed and taken.

This agreement shall be binding upon the successors and assigns of the first party, and the assigns, heirs and personal representatives of the second party.

In witness whereof, the said first party has caused its corporate name to be hereto subscribed and its corporate seal to be at-
21 tached by its duly authorized officer; and the said second party has hereto set his hand the day and year first above written.

UTAH-WYOMING CONSOLIDATED OIL COMPANY.
By FREDERICK J. PACK.
President.
H. E. HAVENOR.
Secretary. First Party.
JOHN C. HOWARD.
Second Party.

Witness:
C. A. BADGER.

STATE OF UTAH.
County of Salt Lake, ss:

Before me, Bertha H. Cannon, a Notary Public in and for said County, personally appeared Frederick J. Pack, President of the Utah-Wyoming Consolidated Oil Company, and H. E. Havenor, Secretary fo the Utah-Wyoming Consolidated Oil Company, and acknowledged the signing and ensealing with the corporate seal of said Company of the above instrument, to be their voluntary official act and deed as president and secretary, respectively, of said Company, and the voluntary corporate act and deed of said Company.

And I do further hereby certify that John C. Howard personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that he signed, sealed and delivered said instrument as his free and voluntary act for the uses and purposes therein set forth.

Given under my hand and seal this 2nd day of December, A. D. 1916.
BERTHA H. CANNON.
Notary Public.

My commission expires May 16, 1920.

22 Endorsements: No. 1080. In the District Court of the United States, District of Wyoming. Midland Carbon Company and Occidental Oil & Gas Company, Complainants, vs. William L. Walls, Attorney-General of the State of Wyoming, et al., Defendants. Bill of Complaint. Filed Sep. 29, 1919. Charles J. Ohnhaus, Clerk. Lacey & Lacey, Cheyenne, Wyoming, for Complainants.

23 STATE OF NEW YORK,
County of New York, ss:

C. Harold Smith, being duly sworn, deposes and says:

I reside at 601 West End Avenue, New York City, and am president of the Binney & Smith Company of 81-83 Fulton Street, New York City.

Said Company does not itself manufacture carbon black, but markets and distributes as selling agent the product of a number of carbon factories, including that of the Midland Carbon Company. The total sales of carbon black by the Binney & Smith Company exceed one million dollars per year. Said company also maintains a laboratory for tests and experiments in connection with carbon black.

The average selling price of the black produced by the Midland Carbon Company at its factory at Cowley, Wyoming, for the period said factory has been in operation, has not been less than ten (10) cents per pound, f. o. b. said factory.

I have been continuously engaged in business as a dealer in or producer of blacks of various kinds since 1880, and am thoroughly familiar with their methods of manufacture, qualities, and the uses for which they are essential.

The three principal kinds of black (other than dyes) are (1) carbon black, which is made by burning natural gas, (2) lamp black, which is made by burning creosote oils or tar oils, and (3) bone black, which is made by burning animal bones.

These blacks differ quite distinctly in their respective properties, such molecular structure, color-strength, covering power, oil absorption, and intensity of color, as well as in their industrial uses.

They are all staple commodities, well-known for many years to the commercial world, and widely dealt in as articles of interstate commerce.

The uses of carbon black are so many and so diversified that they concern practically every citizen in the United States.

The principal manufactures in which carbon black is an essential or usual ingredient are: (1) printing ink, (2) pneumatic tires for automobiles, (3) solid tires for trucks, (4) black and gray paints, (5) black varnishes, (6) shoe polish, (7) stove polish, (8) typewriter ribbons, (9) carbon or manifold paper, (10) phonograph records, (11) electrical compositions, (12) colorings for cement, (13) tarpaulins, (14) oil cloth and carriage cloth, (15) cameras, (16) crayons, (17) book binders' board, (18) black leather.

I estimate the total annual requirements of carbon black in these

industries to be over forty million (40,000,000) pounds per year, of which the greater part is required by the printing ink and automobile tire trades.

In the late war, carbon black was used to the amount of
24 many million pounds in the manufacture of tires for gun carriages and ammunition trucks, gas masks, aeroplane tires and for camouflage.

Pre-eminent among the uses for which carbon black is essential is the manufacture of newspaper inks, as well as the inks with which our books and magazines are printed.

In the making of printing ink, carbon black is mixed with mineral oil in the proportion by weight of approximately eight parts of oil to one of carbon black. Its softness, miscibility with oil, color and covering power have caused its use for this purpose to be practically universal, and it is not too much to say that carbon black is the vehicle or medium by which the general dissemination of news in the United States is at present accomplished.

Within the past few years it has been demonstrated that carbon black has the peculiar property, when added to rubber compounds, of materially increasing the tensile strength and durability of rubber, and it is consequently very extensively employed by all the leading makers of automobile tires of the United States, in the manufacture of tires, both solid and pneumatic. The Company of which I am president supplied carbon black in carload quantities during the year 1918 to over seventy-five (75) American tire manufacturers.

Among other products for which carbon black is essential are stove polishes and phonographic records, carbon papers and typewriter ribbons.

Lamp black, on the other hand, is essential for electric arc carbons and projectile carbons.

Bone black is well adapted to engraving, though it is useless for printing ink, and if so used would clog the type and make no print impression.

There is no known raw material or substance from which carbon black, or a black possessing like properties, can be commercially manufactured except natural gas. Theoretically, it might be made from artificial illuminating gas, but this would be impossible as a commercial operation on account of the low yield, immense investment required, and prohibitive cost.

I have personally made and caused to be made many experiments during the past thirty years in the improvement of the processes, yield and quality of carbon black, and to effect economies in production. I have inspected many carbon factories. I have also inspected the lamp black factories of many manufacturers in America, in England and in Continental Europe. I have also inspected bone black factories, and have myself been engaged both in bone black and lamp black manufacture. But I have never seen any factory at which any of said products is manufactured, in which the heat is utilized, nor is there any such factory to the best of my knowledge, information and belief. In carbon black works the fuel used *in* nat

ural gas, in lamp black works it is oil, and in bone black works it is coal. But in each case means have not yet been found to utilize the heat either in the generation of mechanical power or for domestic use.

C. HAROLD SMITH.

Subscribed and sworn to before me this 17th day of September, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, No. 186 New York County, Register's No. 10108.

Commission expires March 30, 1920.

25 STATE OF NEW YORK,
County of New York, ss:

Philip Ruxton, being duly sworn, deposes and says:

I am the president of the National Association of Printing Ink Makers and have my office at No. 220 West 42d Street, in the City, County and State of New York.

Said association comprises in its membership the manufacturers of at least ninety per cent of all the printing ink made in the United States.

Said association is not engaged in the manufacture of carbon black, nor am I engaged in such manufacture.

I am and have been for many years engaged in the manufacture of printing inks, and am president of Philip Ruxton, Inc., which supplies printing inks to the publishers of many newspapers and periodicals.

Printing inks are made by the admixture of carbon black with oil, in varying proportions according to the formula employed and grade of ink desired. The proportion of one part of carbon black to eight parts of oil is approximately correct as an average. The oil used is customarily a mineral oil, especially prepared for the purpose.

In the manufacture of newspaper inks carbon black made from natural gas is an essential ingredient. The rapid operations of the modern printing press require an ink that will flow freely, print quickly and leave an intensely black impression. In the production of inks adapted to its requirements, carbon black is universally used an indispensable. Many millions of pounds of this material are annually required by the ink makers of the United States. No satisfactory substitute is available. Any restriction or curtailment of the output of carbon black therefore presents the gravest cause for apprehension, not only to the ink manufacturers, but to the publishers of newspapers and to the entire reading public.

PHILIP RUXTON.

Subscribed and sworn to before me this 18th day of September, 1919.

[SEAL.]

TOWNSEND MORGAN,
Notary Public, No. 186 New York County, Register's No. 10108.

Commission expires March 30, 1920.

26 STATE OF NEW YORK,
County of New York, ss:

Frederick H. Levey, being duly sworn, deposes and says:

I am president of the corporation of Frederick H. Levey & Co., manufacturers of printing inks, and my office is located at 59 Beekman Street, New York City.

I have been for many years engaged in the manufacture and sale of printing inks of different kinds.

Carbon black made from natural gas is an indispensable ingredient in most printing inks and especially in all inks used in the printing of newspapers.

There has been a great scarcity of carbon black during the past three years, and this has caused the ink manufacturers serious concern.

If the newspapers and other periodicals of the country are to be printed, it is absolutely essential that the printing ink manufacturers receive adequate supplies of carbon black.

FREDERICK H. LEVEY.

Subscribed and sworn to before me this 17th day of September, 1919.

[SEAL.]

TOWNSEND MORGAN,
Notary Public, No. 186 New York County, Register's No. 10108.

Commission expires March 30, 1920.

27 STATE AND COUNTY OF NEW YORK, *ss:*

James A. Ullman, being duly sworn, deposes and says:

I am an officer, to wit, vice-president of Sigmund Ullman Company, which company is engaged in the manufacture of printing ink and has its place of business at Park Avenue and 145th Street, City and State of New York.

I have been for many years engaged in the manufacture of inks. I have also served as president of the National Association of Printing Ink Makers.

My company sells news ink to many weekly and daily newspapers as well as to publishers of books and periodicals.

Carbon black manufactured from natural gas is absolutely essential to the manufacture of newspaper inks and there is no satisfactory substitute available for this purpose.

Any curtailment in the supply of carbon black which is already

barely sufficient to meet the demands of the various users of this material, would in my judgment have a very serious effect upon the publication of newspapers and other periodicals. The continuance and increase of its production is of vital importance to the printing ink business.

JAMES A. ULLMAN.

Subscribed and sworn to before me this 17th day of September, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, No. 186 New York County,
Register's No. 10108.

Commission expires March 30, 1920.

28 STATE OF NEW YORK,
County of New York, ss:

Henry J. Weber, being duly sworn, deposes and says:

I am the president of Charles Enu Johnson & Company of Philadelphia. Said Company conducts, I believe, the oldest printing ink manufacturing business in America. My experience in the active conduct of its affairs extends over a period of more than thirty years.

Said Company manufactures newspaper inks upon a large scale. Among the newspapers which it supplied during the past year are the Philadelphia Public Ledger, Philadelphia Inquirer, Philadelphia Evening Bulletin, Denver Post, and many other newspapers and periodicals.

Newspaper inks are made by the admixture of carbon black and mineral oil. A pound of carbon black is sufficient to make nine pounds of ink, or enough to print approximately two thousand two hundred and fifty copies of an ordinary sixteen page newspaper.

Carbon black made from natural gas has been for many years the universally used and indispensable ingredient in this manufacture. No other kind of black possesses the requisite combination of qualities, i. e., intense blackness of color, great covering power and freedom of flow when mingled with oil, which are essential to meet the requirements of the modern rotary printing press.

HENRY J. WEBER.

Subscribed and sworn to before me this 19th day of September, 1919.

TOWNSEND MORGAN,
[SEAL.] *Notary Public, No. 186 New York County,*
Register's No. 10108.

Commission expires March 30, 1920.

29 STATE OF NEW YORK,
County of New York, ss:

Frederick J. Maywald, being duly sworn, deposes and says:

My profession is that of consulting chemist. I have been engaged in said profession for thirty-one years. My office is at No. 86 Park Place, Newark, New Jersey. I maintain a completely equipped laboratory for experimental work on rubber and am employed as a consulting chemist by many manufacturers of rubber goods.

I have carried out a series of experiments with carbon black in connection with the use of this product in rubber goods. The object of these experiments was to demonstrate the general effect of its use in rubber stocks and more especially in tire tread compounds. All formulas used were either standard or ordinary compounds, no attempt being made to obtain results by the use of anything but well-known and commonly used ingredients.

My first series of tests were made with zinc oxide compounds by substitution of some of the zinc oxide and also thegum with varying quantities of carbon black.

The results obtained clearly demonstrated that the addition of carbon black to a white (zinc) tire tread stock materially shortens the time of cure, acts as an accelerator and enables a more economical factory output per day. These tests further indicate that the use of carbon black up to a certain extent increases the tensile strength and the elasticity or stretch of rubber.

I then made a series of experiments for the purpose of determining the advantages of using carbon black with other than zinc compounds. These tests also clearly showed that the addition of carbon black increased the tensile strength and stretch and accelerated the cure.

To summarize the advantages demonstrated by all the above tests, I would state that the use of carbon black in tire tread compounds results in the following advantages:

1. A reduction in the time of cure varying from 37½% to 75%.

2. An increase in tensile strength from 41½% to 263 1/3%, according to the formula used.

3. A maximum increase of stretch of 10 2/3%.

4. Decreases in the weight or gravity of the compound in proportion to the amount of carbon black used.

5. A decrease in cost of from 8% to 13 1/3%.

6. A more perfect color than is obtained by the use of any other ingredient.

7. The absence of "bloomning" after the cure of the compound.

A further series of tests was conducted by me using oil lamp black in the various compounds. These tests showed that the sub-

stitution of this material decreased the tensile strength as compared with compounds in which carbon black was used from 14-7/10% to 44-1/10%.

I know that the use of carbon black, not only in tire tread compounds but in other rubber goods, is very extensive throughout the rubber industry, amounting to many millions of pounds annually, and that a curtailment of the supply of this material would cause serious detriment and harm to the rubber trade.

FREDERICK J. MAYWALD.

Subscribed and sworn to before me this 19th day of September, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public No. 186, New York Register's No. 10,108.

Commission expires March 30, 1920.

30 STATE OF NEW YORK,
County of New York, ss:

George C. Lewis, being duly sworn, deposes and says:

I reside in the City and State of New York. I have been engaged for over fifteen years in the manufacture of lamp black. I am secretary of The L. Martin Company, which has an extensive and long-established business in this manufacture and owns and operates lamp black works at Philadelphia and in London, England. Its lamp black factory at Philadelphia was re-built under my plans and supervision. It does not make carbon black. I am also employed in an advisory capacity upon matters of plant construction by the National Carbon Company of Cleveland, Ohio, which manufactures lamp black, electric arc carbons, batteries, etc. I have also built lamp black works in Europe and have visited and inspected many lamp black factories not only in the United States, but in England, France and Germany. I am thoroughly conversant with the processes employed in the manufacture of lamp black, carbon black and bone black, and with the methods and details of factory construction.

While carbon black, lamp black and bone black are distinct products, they have this in common, that the manufacture of each involves the consumption of fuel and the generation of heat. In making carbon black natural gas is burned. In making lamp black oil is burned. In calcining animal bones coal is ordinarily the fuel used. In none of these processes, however, as now or heretofore employed either in the United States or in Europe, is the resultant heat utilized.

The problem of heat utilization is not a new one, nor is it by any means peculiar to these lines of manufacture. It has engaged the attention of engineers and factory builders for many years. Any step toward its solution would be of vital importance to manufacturers of lamp black, whose factories are generally located in proximity to populous cities, such as London, Manchester, Newcastle on Tyne, Edinburgh, Cologne, Berlin, Paris, Boston, Philadelphia and Cleveland. Yet no lamp black manufacturer has yet been able to

devise any practicable method of making any utilization of the heat generated as an incident to such manufacture. Of course the problem is only one phase of the broad question which confronts all industries using fuel for the production of manufacturing power, light, or any other product of combustion, since it is well known that such uses are always attended by loss of the greater part of the heat. In the present state of our knowledge on the subject, a requirement that the heat should be fully utilized would be not only unreasonable but impossible to every industry using heat engines or otherwise depending upon fuel for power, light or ark.

GEORGE C. LEWIS.

Subscribed and sworn to before me this 17th day of September, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, New York County.
Register's No. 10,108.

Commission expires March 30, 1920.

31 STATE OF NEW YORK,
County of New York, ss:

Bradley W. Rumbarger, being duly sworn, deposes and says:

I reside in Monroe, in the State of Louisiana. I am employed as a chemist by the Southern Carbon Company, which is extensively engaged in the manufacture of carbon black and gasoline at Fairbanks and Speyker, Louisiana. I am a graduate of the Delaware State University. I was employed by the United States Government for nearly two years during the late war, as a chemist in research work and experiment upon problems connected with the utilization and products of natural gas. Prior to said service I was employed as a chemist in the making of all manner of tests and analyses of natural gas by the Ohio Fuel Supply Company, which is engaged on a large scale in the production and distribution of natural gas for light and power, and the extraction of gasoline therefrom, in the State of Ohio.

I have, as above set forth, devoted my entire time and attention for several years to research and investigation of the properties and utilization of natural gas, and have made a special study, both from the theoretical and practical standpoint, of the various uses and products of natural gas, and the processes and appliances employed for the utilization of the same in the production of gasoline, amylacetate, carbon black, heat, power and light.

From the combustion of natural gas or of any fuel, a certain amount of heat is derived, which may be measured and calculated, the unit of measurement employed being known as the British thermal unit. Such heat has a well-known equivalent in Kinetic energy or work, and in light, which would result from its full utilization. As soon, however, as the attempt is made to transform said heat into any other form of energy, such as light or mechanical power, an enormous but inevitable loss of heat results. Improved

appliances, efficient operation and ideal conditions may somewhat reduce or minimize said loss, but such a thing as fully utilizing the heat contained in, or producible from, any fuel, in the production of light or manufacturing power is impossible under any actual conditions known at the present day.

Such losses of heat are sometimes referred to as "waste," but they are inherent in the use of all fuels, where the resultant product sought is something other than heat alone.

In the consumption of fuels for light or power, such losses of heat range from sixty per cent. (60%) to ninety-nine and five-tenths per cent. (99.5%).

In the ordinary form of lava-tip gas burner, generally used for illumination, the light obtained is yellowish and unstable. Ninety-per cent. (90%) of the lighting efficiency and at least ninety-nine and five-tenths per cent. (99.5%) of the heating value of the gas consumed is lost. The other type of burner, known as the incandescent mantle lamp, is somewhat better as to light efficiency, but again most of the heating power of the gas is not utilized.

In a series of experiments conducted by the United States Bureau of Standards to determine the efficiency of gas mantle lamps, the average efficiency lumens per B. t. u. per hour were found to be as follows:

Reflex lamps	0.300
Upright lamps	0.315

Enormous heat losses are equally inseparable from the consumption of fuel for power. It is invariably found that the best heat engines are able to utilize only a relatively small percentage of the heat of the fuel.

In the Encyclopedia Britannica (Title "Heat," Volume XIII, page 147), it is stated:

"The best modern steam engines do not utilize more than 20% of the heat of combustion."

In Allen and Barsley's standard treatise on "Heat Engines," the following table of available efficiencies is given for various types of engines:

Type of engine.	Range of temperature in cylinders.	Theoretical efficiency.	Probable actual efficiency.
Average non-condensing steam engine	116°	14.5%	8.7%
Average condensing steam engine	226	27.8	16.7
High pressure non-condensing steam engine	194	22.4	13.4
High pressure condensing steam engine	279	32.2	19.3
High pressure steam engine, superheated steam	381	39.6	23.8
Average condensing steam turbine, saturated steam	381	39.6	23.8
High pressure condensing steam turbine, superheated steam	429	43.3	25.7
Small gas engine	960	39.5	19.5
Large gas engine	1360	47.0	28.0
Large gas engine, high compression	1400	52.2	31.6
Diesel motor, very high compression	1900	60.0	35.0

The heat losses by actual measurement in a gas engine were found to be as follows:

Heat loss in exhaust	45%
Heat loss in water jacket	33%
Heat Loss in radiation and conduction	12%
Total losses	90%

In a steam engine most of the heat brought to the engine by the steam is rejected by the engine to the exhaust. This varies from 70% of the heat of the steam in the best engines to 90% in the poorer types. (Heat Engines—Allen and Bursley.)

Bryan Donkin found in his researches on gas, oil and air engines, facts as follows: The heat efficiency of the best engines per boiler horse power is about 25%. The temperature of the gas at the moment of explosion is about 4000° C. Whatever the actual temperature, the heat is too great to be retained. Heat is carried off continuously by a cooling system. Frequently 94% to 96% of the heat is dissipated. The loss of heat causes a loss of power, for the higher the gases are heated the greater will be their expansion and therefore the greater the power. The test of efficiency of any gas engine is the proportion between the total heat supplied and the total useful work obtained. Most gas engines are so constructed that the unburnt gases are allowed to escape at a relatively high pressure and temperature, which are thus lost, instead of being utilized.

In the internal combustion engine the maximum efficiency range

from twenty to thirty per cent, the balance of the heating power of the fuel being wholly lost without any utilization whatever.

The following is a list of actual tests on different types of gas and oil engines (from "Gas, Oil and Air Engines"—Byron Donkin).

Gas Engines.

Name.	Per cent.
National	25.0
Crossley	24.0
"	22.0
"	21.2
Premier	21.0
Crossley	19.7
Atkinson	19.5
Stockport	19.2
Crossley	18.0
Trusty	17.5
Crossley	17.4
Griffin	17.0
Beck	16.7
Griffin	16.0
Premier	15.7
Beck	15.7
Forward	15.5
Crossley	15.0
Forward	15.0
Fawcett	14.5
Ajax	14.5
Crossley	14.0
Deutz	14.0
Griffin	14.0
Crossley	13.0
Clerk	13.0
Crossley	12.0
Clerk	10.0
"	8.0
Brayton	6.0

Oil Engines.

Name.	Per cent.
Banki	27.3
Diesel	26.8
"	25.8
Banki	25.7
"	25.0
Capataine	21.9
Niel	19.2
Blackstone	18.5
Crossley	17.3
Tangye	17.1
Mesline	16.9
Deutz	16.8
Trusty	16.1
Altmann	15.9
Wenterthur	15.3
Preistamn	14.3
Griffin	13.2
Premier	13.2
Beck	12.9
Pollock	11.9
Daimler	10.5
Janieschek	8.9
Campbell	7.9
Robey	5.0
Brayton	4.8

The following statement will illustrate the extent of the utilization of the heat contained in gas in the generation of power for mechanical purposes, in a highly efficient gas engine:

Gas Engine Heat Balance Account.

Heat units.	Per cent.	Heat accounted for.	Per cent.
Received per explosion...	100	In work	22.32
		Carried off by jacket...	33.96
		Carried off by exhaust gases	43.29
		Radiation, unaccounted for	1.43
Efficiency	22.32%		100.00
		Loss	77.68%

34 In the various types of pumping plant, according to statistics compiled by the United States Bureau of Mines (Bulletin 156), the relation between the heat expended and the work performed is as follows:

Type of pumping plant.	Overall efficiency.
Steam, good operating conditions.....	7%
Steam, best operating conditions.....	10%
Steam, superheated steam used.....	12%
Suction, gas engine, good operating conditions.....	15%
Humphrey's gas pump, good operating conditions.....	20.1%
Suction, gas engine, special conditions.....	19%
Diesel engine, good operating conditions.....	29%

If the power supplied by a gas engine be used to generate electricity, there is first a fifteen per cent (15%) loss in the generator. Next, there is a line loss in transmission. Dr. Steinmetz, Chief Engineer of the General Electric Company, has estimated that the most modern type of incandescent electric light bulb ultimately and actually utilizes only about three per cent (3%) of the heat of the fuel employed, while the old fashioned carbon filament bulb uses only one per cent (1%), the losses in these cases again being in the form of utilized heat.

In the arc electric light, commonly used for street lighting, there is an enormous loss of heat, not only in the generation of the electric power, but also in the lamp itself. In a summary of tests on the subject of the temperature of the arc, published by the United States Bureau of Standards (Scientific Papers No. 81), it is stated:

"In the light of the best evidence that is at present available, it would seem that the true temperature of the hottest part of he positive carbon is between 3900° and 4000° absolute."

The heat so expended in street lighting is of course a total loss.

These examples, which might be multiplied indefinitely, demonstrate the impossibility, in the present state of human knowledge, of fully utilizing in manufacture the heat contained in fuel. If the true test of the waste of gas or any other fuel be whether or not the heat therein contained is fully utilized, it would follow that prac-

tically every industrial use of fuel must be characterized as wasteful.

In my work as chemist in connection with carbon manufacture, I have tested and ascertained the average temperature of the channel plates and interior of the buildings in which such manufacture is conducted. Using a standard pyrometer of the hot and cold junction type, I have ascertained the range of temperature in the interior of carbon factory buildings to vary from 393° to 476° centigrade. I have also had occasion to analyze the residual products after combustion of the gas in such buildings. The samples tested were obtained under conditions making it certain that they were fairly representative of the residual products. The results of such tests were extremely good, showing that the gas is not wastefully used. The following is a typical analysis:

Analysis of Flue Gas from Southern Carbon Company, Fairbanks, Louisiana.

Carbon dioxide	2.50%
Oxygen	14.30%
Carbon Monoxide	1.36%
Nitrogen	81.83%
Moisture	.01%
	100.00%

35 These analyses show that there is certainly no waste in the residual gases, as compared with flue gases from a furnace or boiler stack.

I have carefully inspected and examined the carbon factory of the Midland Carbon Company, at Cowley, Wyoming. Such factory is constructed and operated in a most efficient manner, and employs the most modern and improved machinery, appliances and processes in the manufacture of carbon black.

BRADLEY W. RUMBARGER.

Subscribed and sworn to before me this 8th day of September, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, No. 186, New York County,
Register's No. 19108.

Commission expires March 30, 1920.

(Copy.)

Original typewritten affidavit attached.

36 STATE OF PENNSYLVANIA,
County of Erie, ss:

F. Felix Curtze, being duly sworn, deposes and says:

I reside in Erie, in the State of Pennsylvania. I am vice-president of the Midland Carbon Company and of the Occidental Oil & Gas

Company. I am president of the Erie Trust Company. I have been engaged for over thirty years in the manufacture of carbon black from natural gas. My experience in this business extends to Pennsylvania, West Virginia, Louisiana and other states.

The said Midland Carbon Company and Occidental Oil & Gas Company are jointly engaged in business in Wyoming.

The Midland Carbon Company manufactures carbon black from natural gas. The Occidental Company owns the land on which the gas is produced, receives a royalty from the producer, conveys the gas to the carbon factory in a pipe line specially constructed for the purpose, and contracts for the extraction of the gasoline therefrom.

Prior to January 1, 1919, these companies had respectively acquired and constructed property for the prosecution of said business in Wyoming as follows (all values being stated at actual cost):

Midland Carbon Company.

Factory and construction	$343,556.65
Workmen's dwellings	12,678.68
Shop and tools	1,177.68
Office	965.61
Boarding house	1,910.57
Warehouses	4,105.11
Packing houses	2,417.11
Oil tank	50.00
Fixtures	1,268.34
Real estate	1,500.00
Water equipment	7,108.77
	$379,738.52

37

Occidental Oil & Gas Company.

Gas leases and contracts	$102,300.00
Gas lands in fee	39,650.75
Pipe lines	67,246.64
Buildings	1,533.45
Gas wells	67,867.71
Construction	29,197.43
Equipment	5,023.42
Rights of way, fixtures, etc.	3,277.44
	$307,096.84

In the autumn of 1916, one John C. Howard, President of the Utah Oil Refining Company of Salt Lake City, Utah, approached me and certain of my business associates with a view to inducing us to erect a carbon black factory at or near Cowley, Wyoming. At that time Mr. Howard contemplated building a plant for extraction of gasoline from natural gas, and selling the residue of the gas, after such gasoline extraction, for carbon manufacture. The gas which he proposed to use for this enterprise was that developed by the

Utah-Wyoming Consolidated Oil Company, a Utah corporation, from its gas leases on "Garland Anticline" in the Big Horn Basin. These leases lie in Sections 33, 28 and 29, Township 56 North Range 97 West, Big Horn County, about six miles from Cowley and between eight and nine miles from Lovell. Several large wells had been drilled on these leases, but were shut in because there was no market for the gas.

Mr. Howard had a contract for the purchase of gas from the Utah-Wyoming Consolidated Oil Company, and also controlled 1,200 acres of gas leases in the "Byron Anticline," in the vicinity, which it was contemplated would be held as a reserve for the carbon and gasoline works.

As a result of Mr. Howard's proposals, I visited Wyoming in October or November of 1916, inspected said gas wells and properties, and caused tests of the carbon and gasoline contents of the gas to be made by technical experts.

It was then decided to purchase said contract for the Utah-Wyoming Company's gas, and also the gas leases in the "Byron Anticline." A contract was accordingly entered into on December 6, 1916, providing for this transfer. The Midland and Occidental Companies were organized on December 19, 1916, and on December 26, 1916, obtained authority to do business in Wyoming.

These details are stated for the purpose of showing that the Midland and Occidental Companies were organized for the specific purpose of utilizing this particular gas and of acquiring Mr. Howard's contract with the Utah-Wyoming Company and in reliance upon its validity and binding force.

This contract is dated October 5, 1916, and is recorded in Big Horn County in Book 13 of Miscellaneous, page 59. By a subsequent agreement between the same parties, dated December 2, 1916, recorded in Book 13, page 64, the aforesaid contract was extended to embrace the gas from additional lands, and Mr. Howard also agreed to loan $20,000 to the Utah-Wyoming Company to enable that Company to purchase the half-interest of the Ohio Oil Company in certain of said gas leases.

On or about January 6, 1917, by assignments duly executed and recorded, John C. Howard et al. assigned to the Occidental Company the aforesaid contracts, together with twenty-three (23) gas leases in the Byron Anticline aggregating 1,200 acres as above stated.

The consideration for these transfers was the payment to Howard of $102,300 in cash, of which it was understood between the parties $70,000 represented the value of the Utah-Wyoming contracts, and the balance the value of the leases; and the assumption by the Occidental Company of the obligation to lend $20,000 to the Utah-
38 Wyoming Company for the purposes expressed in the agreement of December 2, 1916.

This obligation was performed, and the Utah-Wyoming Company proceeded to purchase the gas rights in said lands, paying the $20,000 and also transferring to said Ohio Oil Company the oil rights in respect of certain leases.

There was thus a complete and irrevocable change of position by

all the parties in reliance upon the contracts of October 5, 1916, and December 2, 1916.

The Midland Company early in 1917 purchased a factory site of twenty-four acres on the Chicago, Burlington & Quincy Railroad, over a mile distant from the town of Cowley.

The gas wells being about six miles from the factory site, the next step was to lay a pipe-line to transport to the proposed factory the gas contracted for. This was done by the Occidental Company in the Spring of 1917. An eight-inch main was laid from the wells of the Utah-Wyoming Company to the Midland factory site, at a cost of $67,264.64.

Construction of the factory proceeded during 1917 and 1918. The first unit was completed in October, 1917. As rapidly as units were completed, they were put in operation. The factory has been continuously in operation since October, 1917. As finally completed, the factory consists of the following buildings:

Factory buildings.	Packing houses.	Warehouses.	Workmen's dwellings.	Miscellaneous.	Total.
90	3	1	12	4	110

The factory buildings, in which the gas is burned, are of substantial size and construction, being built entirely of structural steel and corrugated iron.

Simultaneously, plans were made for building a plant to extract the gasoline from the natural gas.

It was determined to contract for the erection and operation of the gasoline extraction plant by a separate company, known as the Eastern Fuel Company, upon a royalty basis, the Occidental Company receiving one-half of the gasoline extracted.

This gasoline plant was accordingly erected in 1917, on the factory site of the Midland Company, immediately adjacent to the carbon works, so that the two plants could be operated as parts of a continuous process, the gas passing first through the gasoline plant and thence into the carbon works. The gasoline plant was, as I am informed, actually built by the Hope Natural Gas Company at a cost exceeding fifty thousand dollars ($50,000) and is operated under the so-called "Seyboldt" patent.

In 1918 the Occidental Company made a further investment of over $30,000 in the purchase of the fee of the lands on which the Utah-Wyoming gas wells are located.

According to the records of the company, the carbon factory and gasoline works produce daily an average of 13,808 pounds of carbon black, and 1,638 gallons of gasoline.

In this manner these companies have in less than three years invested in good faith nearly seven hundred thousand dollars ($700,000) in Wyoming, have erected upwards of one hundred (100) permanent buildings on a spot where three years ago there was no human habitation, and have established in said State a useful and profitable industry, utilizing only gas from wells which never before supplied a single consumer.

The said carbon factory was erected under the personal supervision of W. S. Hoskins, an expert of long experience in the design, construction and operation of carbon factories. Among the companies for which he has designed or built carbon factories are the Columbia Carbon Company of West Virginia of which he is at present technical director; the Weston Carbon Company of Weston, West Virginia and Elm Grove, Louisiana; the American Carbon Company of West Virginia; and the Western Carbon Company of Coalton, Oklahoma.

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The process in use at the Midland factory is the best and most improved one commercially known, and is substantially that employed in the most modern factories in West Virginia, Louisiana and other States, embodying the results of many experiments and many years of practical manufacturing experience.

The gas after passing through the gasoline absorbers, enters the factory at a very low pressure in order to minimize the quantity used. The pressure is controlled by regulators. The supply of air is regulated by a draft system, so as to produce the most economical results. All gas used is carefully metered.

The black is scraped mechanically from the channel plates on which it is deposited, and conveyed automatically to a hopper, whence it passes through a succession of bolters, and is then packed by special machinery. Long experience has determined the number and size of tips, the number, size and position of plates, the draft regulation, and the amount of air space necessary to the utmost efficiency and economy of operation. As a result, at the present time each thousand cubic feet of gas consumed at the Midland works, according to the records of the company, yields one and three-fourths pounds of carbon black, and .214 of a gallon of gasoline.

The manufacture of carbon black renders possible the recovery of great quantities of gasoline from natural gas that would otherwise be impossible.

By the absorption method from one *point* to one quart of very high-gravity gasoline can be recovered from natural gas, without diminishing the volume of the gas by more than 6%. The yield varies according to the composition of the gas.

The gas so treated must be used. It cannot be allowed to escape into the air. Gasoline extraction from gas such as is produced from the wells in the vicinity of Cowley cannot be conducted except at a loss where less than 2,500,000 cubic feet of gas per day are treated. Consequently, to render such treatment practicable, a steady and continuous use of the gas, after treatment, must be found amounting to at least 2,500,000 cubic feet every 24 hours. Such a volume of gas cannot usually be marketed in sparsely settled localities except for carbon manufacture.

In my thirty years' experience in carbon manufacture, during which I have been connected as officer, director and stockholder with many companies engaged in this industry, I have known of a number of instances where, as at Cowley, carbon manufacture was the means of first providing a supply of natural gas to the local community for domestic use, and I know that by creating a ready mar-

ket for gas that would otherwise be unsaleable in commercial quantities, it has stimulated production, caused the laying of pipe lines, enhanced the value of gas lands, and prevented the waste of gas through careless drilling operations, such as have been lamentably common in regions where natural gas is not vendible in substantial quantities and consequently has little value as an article of commerce.

The experience of many years also shows that carbon manufacture does not consume a disproportionate amount of gas or constitute a source of danger to gas resources. This is most clearly demonstrated by the West Virginia gas fields, where for the past fifteen years from sixty to seventy-five per cent of the total carbon black supply of the United States has been produced. During this period carbon black has been manufactured in said State on a scale far exceeding anything ever attempted in Wyoming, the present production in West Virginia being in excess of twenty-five million (25,000,000) pounds per annum. Yet the statistics of the United States Geological Survey show that the natural gas production of West Virginia during this period has enormously increased both in volume and value. In 1898 it was 81,334,023, in 1903 it was 86,882,359, in 1908 it had risen to 814,837,130, in 1913 it was 834,164,850, and in 1916, 847,603,396. The quantity produced has also steadily increased. In 1914, for example it was 238,740,162,000 cubic feet, in 1915 it was 244,004,159,000 cubic feet, and in 1916 it was 299,318,907,000 cubic feet. In 1917 the production as reported to the Public Service Commission of West Virginia was 305,264,926,000. These figures certainly demonstrate that the productivity of the West Virginia gas fields has not been impaired by carbon manufacture.

Based on the statistics of the value of gas consumed for industrial purposes published by the United States Geological Survey, I estimate that the carbon black industry has never consumed more than 1½% in value of the total industrial consumption of natural gas.

F. FELIX CURTZE.

Subscribed and sworn to before me this 17 day of September, 1919.

J. E. HUNT,
Notary Public.

[SEAL.]

My Commission Expires Feb. 3, 1921.

STATE OF NEW YORK,
County of New York, ss:

C. Harold Smith, being duly sworn, deposes and says:

I am president of the Binney & Smith Company. Attached to this affidavit is a list of manufacturers of rubber goods supplied with carbon black made from natural gas during the year 1918.

C. HAROLD SMITH.

Subscribed and sworn to before me this 19th day of September, 1919.

[SEAL.] TOWNSEND MORGAN.
Notary Public No. 186, New York County Register's No. 10108.

Commission expires March 30, 1920.

42 *List of Rubber Manufacturers Supplied by Binney & Smith Company with Carbon Black.*

Acme Rubber Mfg. Co., Trenton, N. J.
Advance Rubber Co., Brooklyn, N. Y.
Alden Rubber Co., Boston, Mass.
Amazon Tire & Rubber Co., Akron, Ohio.
American Rubber & Tire Co., Akron, Ohio.
Be-Saw Tire & Rubber Co., Hartville, Ohio.
Braender Rubber & Tire Co., Rutherford, N. J.
Brunswick-Balke-Collender Co., Chicago, Ill.
Canadian Consolidated Rubber Co., Montreal, Canada.
Carlisle Cord Tire Co., Andover, Mass.
Carlisle Tire & Rubber Co., Carlisle, Pa.
Carr Rubber Co., F. S., South Framingham, Mass.
Combination Rubber Mfg. Co., Bloomfield, N. J.
Continental Rubber Works, Erie, Pa.
Converse Rubber Shoe Co., Malden, Mass.
Cupples Co., St. Louis, Mo.
Curtis Tire & Rubber Co., Chicago, Ill.
Curtis Tire & Rubber Co., Muskegon, Mich.
Dayton Rubber Mfg. Co., Dayton, Ohio.
Dominion Tire Co., Ltd., Kitchener, Ont., Canada.
Dreadnought Tire & Rubber Co., Baltimore, Md.
Dryden Rubber Co., 1014 S. Kildare Ave., Chicago, Ill.
The Dry Climate Tire Co., Arvada, Colo.
Dunlop Tire & Rubber Goods Co., Toronto, Ontario, Canada.
East Palestine Rubber Co., East Palestine, Ohio.
Empire Tire & Rubber Co., Trenton, N. J.
Endurance Tire & Rubber Co., New Brunswick, N. J.
Falls Rubber Co., Cuyahoga Falls, Ohio.
Federal Rubber Mfg. Co., Milwaukee, Wis.
Firestone Tire & Rubber Co., Akron, Ohio.
Fisk Rubber Co., Chicopee Falls, Mass.
G. & J. Tire Co., Indianapolis, Ind.
Gates Rubber Co., Denver, Colo.
General Tire & Rubber Co., Akron, Ohio.
Giant Tire & Rubber Co., Findlay, Ohio.
Gillette Rubber Co., Eau Claire, Wis.
Gillette Safety Tire Co., Inc., Eau Claire, Wis.
B. F. Goodrich Co., Akron, Ohio.
Goodyear Tire & Rubber Co., Akron, Ohio.
Goodyear Rubber Co., Middletown, Conn.

Goodyear Tire & Rubber Co., Ltd., Toronto, Ontario, Canada.
Gutta Percha & Rubber Co., Toronto, Ontario, Canada.
Hardman Tire & Rubber Co., Belleville, N. J.
Hartford Rubber Works, Hartford, Conn.
Hawkeye Tire & Rubber Co., Des Moines, Iowa.
Hewitt Rubber Co., Buffalo, N. Y.
Hodgman Rubber Co., Tuckahoe, N. Y.
Home Rubber Co., Trenton, N. J.
Hood Rubber Co., Watertown, N. Y.
Howe Rubber Co., New Brunswick, N. J.
43 Ideal Tire & Rubber Co., Cleveland, Ohio.
Indiana Rubber & Insulated Wire Co., Jonesboro, Ind.
Inland Rubber Co., 142 W. 27th st., Chicago, Ill.
International Rubber Co., 200 Fifth Ave., New York City.
Kanzo Tire Co., 728 Turk st., San Francisco, Cal.
Kelly-Springfield Tire Co., Akron, Ohio.
Keystone Rubber Mfg. Co., Erie, Pa.
Knight Tire & Rubber Co., Youngstown, Ohio.
Kokomo Rubber Co., Kokomo, Ind.
La Favorite Rubber Mfg. Co., Paterson, N. J.
Lee Tire & Rubber Co., Conshohocken, Pa.
McLean Tire & Rubber Co., East Liverpool, Ohio.
McCreary Tire & Rubber Co., Indiana, Pa.
McGraw Tire & Rubber Co., East Palestine, Ohio.
McNaull Tire Co., Toledo, Ohio.
Mansfield Tire & Rubber Co., Mansfield, Ohio.
Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio.
Mason Tire & Rubber Co., Kent, Ohio.
Michelin Tire Co., Milltown, N. J.
Midgely Tire & Rubber Co., Lancaster, Ohio.
Charles E. Miller, Anderson, Ind.
Mohawk Rubber Co., Akron, Ohio.
Morgan & Wright, Detroit, Mich.
Needham Tire Co., Charles River, Mass.
New Castle Rubber Co., New Castle, Pa.
New Jersey Car Spring Rubber Co., Jersey City, N. J.
Norwalk Tire & Rubber Co., Norwalk, Conn.
Oliver Rubber Mfg. Co., Oakland, Cal.
Parker, Stearns & Co., Brooklyn, N. Y.
Pennsylvania Rubber Co., Jeannette, Pa.
Perfection Tire & Rubber Co., Fort Madison, Iowa.
Pharis Tire & Rubber Co., Newark, Ohio.
Plymouth Rubber Co., Canton, Mass.
Polack Tyre & Rubber Co., Bridgeport, Conn.
Portage Rubber Co., Akron, Ohio.
Quabog Rubber Co., North Brookfield, Mass.
Quaker City Rubber Co., Philadelphia, Pa.
Racine Auto Tire Co., Racine, Wis.
Republic Rubber Corporation, Youngstown, Ohio.
Revere Rubber Co., Chelsea, Mass.
Revere Rubber Co., Providence, R. I.

Rubber Products Co., Barberton, Ohio.
Rutherford Rubber Co., Rutherford, N. J.
Seamless Rubber Co., New Haven, Conn.
Sebring Tire & Rubber Co., Sebring, Ohio.
Semi-Ease Hard Rubber Corp., Bridgeport, Conn.
Sioux City Tire & Rubber Co., Sioux City, Iowa.
Sawyer Rubber Reclaiming Co., New Brunswick, N. J.
Southern Tire & Rubber Co., Augusta, Ga.
Sprague Tire & Rubber Co., Omaha, Nebr.
Standard Fruit Tire Co., Keokuk, Iowa.
Stanton Pneumatic Rubber Co., Muskegon, Mich.
Swinehart Tire & Rubber Co., Akron, Ohio.
Toledo-Findlay Tire & Rubber Co., Toledo, Ohio.
Tyer Rubber Co., Andover, Mass.
" United Last & Braid Mfg. Co., Providence, R. I.
United & Globe Rubber Mfg. Co., Trenton, N. J.
United States Rubber Co., New York City.
Van Dyk Linde Rubber Co., Ltd., Toronto, Ontario, Canada.
Vail Rubber Co., Chicago, Ill.
Victor Rubber Co., Springfield, Ohio.
American Rubber Mfg. Co., of New Jersey, Trenton, N. J.
Barnum Rubber Co., New Haven, Conn.
H. O. Canfield, Bridgeport, Conn.
Canton Rubber Works, Canton, Ohio.
Coalinatum Rubber Mfg. Co., Bloomfield, N. J.
Faultless Rubber Co., Ashland, Ohio.
Manhattan Rubber Mfg. Co., Passaic, N. J.
Mechanical Rubber Co., Cleveland, Ohio.
Peerless Rubber Mfg. Co., New Durham, N. J.
Rubber Goods Mfg. Co., New York City.
Stone & Woodward Co., Newton Upper Falls, Mass.
Beaver Falls Rubber Shoe Co., Beaver Falls, Penn.
Flexible Rubber Goods Co., Salisbury, Conn.
Foster Rubber Co., Boston, Mass.
Goodyear's Metallic Rubber Shoe Co., Naugatuck, Conn.
Interchangeable Rubber Heel Co., Taunton, Mass.
General Insulate Co., Brooklyn, N. Y.
Luzerne Rubber Co., Trenton, N. J.

45 STATE OF NEW YORK,
County of New York, ss:

Bradley W. Rumbarger, being duly sworn, deposes and says:

I reside in Monroe, in the State of Louisiana. I am employed as a chemist by the Southern Carbon Company, which is extensively engaged in the manufacture of carbon black and gasoline at Fairbanks and Sterlington, Louisiana. I am a graduate of the Delaware State University. I was employed by the United States Government for nearly two years during the late war, as a chemist in research work and experiment upon problems connected with the utilization and products of natural gas. Prior to said service I was employed as

a chemist in the making of all manner of tests and analyses of natural gas by the Ohio Fuel Supply Company, which is engaged on a large scale in the production and distribution of natural
66 gas for light and power, and the extraction of gasoline therefrom, in the State of Ohio.

I have, as above set forth, devoted my entire time and attention for several years to research and investigation of the properties and utilization of natural gas, and have made a special study, both from the theoretical and practical standpoint, of the various uses and products of natural gas, and the processes and appliances employed for the utilization of the same in the production of gasoline, amyl acetate, carbon black, heat, power and light.

From the combustion of natural gas or of any fuel, a certain amount of heat is derived, which may be measured and calculated, the unit of measurement employed being known as the British thermal unit. Such heat has a well known equivalent in Kinetic energy or work, and in light, which would result from its full utilization. In most, however, as the attempt is made to transform said heat into any other form of energy, such as light or mechanical power, an enormous but inevitable loss of heat results. Improved appliances, efficient operation and ideal conditions may somewhat reduce or minimize said loss, but such a thing as fully utilizing the heat contained in, or producible from, any fuel, in the production of light or manufacturing power is impossible under any actual conditions known at the present day.

Such losses of heat are sometimes referred to as "Waste," but they are inherent in the use of all fuels, where the resultant product
67 sought is something other than heat alone.

In the consumption of fuels for light or power, such losses of heat range from sixty per cent. (60%) to ninety-nine and five-tenths per cent. (99.5%).

In the ordinary form of Welsbach gas burner, generally used for illumination, the light obtained is yellowish and unstable. Ninety per cent. (90%) of the lighting efficiency and at least ninety-nine and five-tenths per cent. (99.5%) of the heating value of the gas consumed is lost. The other type of burner, known as the inverted mantle lamp, is somewhat better as to light efficiency, but again most of the heating power of the gas is not utilized.

In a series of experiments conducted by the United States Bureau of Standards to determine the efficiency of gas mantle lamps, the average efficiency hereto per B. t. u. per hour were found to be as follows:

Reflex lamps 0.28
Upright lamps 0.31

Enormous heat losses are equally inseparable from the consumption of fuel for power. It is invariably found that the best heat engines are able to utilize only a relatively small percentage of the heat of the fuel.

In the Encyclopedia Britannica (Title "Heat," Volume XII page 147), it is stated

"The best modern steam engines do not utilize more than 20% of the heat of combustion."

In Allen and Barsley's standard treatise on "Heat Engines," the following table of available efficiencies is given for various types of engines:

Type of engine.	Range of temperature in degrees.	Theoretical possible efficiency.	Actual efficiency.
Average non-condensing steam engine	110°	14.3%	8.7%
Average condensing steam engine	224	27.8	16.7
High pressure non-condensing steam engine	194	22.4	13.4
High pressure condensing steam engine	279	32.2	19.3
High pressure steam engine, superheated steam	384	39.6	23.8
Average condensing steam turbine, saturated steam	384	39.6	23.8
High pressure condensing steam turbine, superheated steam	450	43.3	25.7
Small gas engine	1000	33.3	19.3
Large gas engine	1200	47.09	28.0
Large gas engine, high compression	1400	52.2	31.6
Diesel motor, very high compression	1600	59.0	36.0

The heat losses by actual measurement in a gas engine were found to be as follows:

Heat loss in exhaust	47%
Heat Loss in Water jackets	33%
" " " Radiation and Conduction	12
Total losses	100%

In a steam engine most of the heat brought to the engine by the steam is rejected by the engine to the exhaust. This varies from 70% of the heat of the steam in the best engines to 90% in the poor types. (Heat Engines—Allen and Barsley.)

Byron Donkin found in his researches on gas, oil and air engines, facts as follows: The best efficiency of the best engines per brake horse power is about 25%. The temperature of the gas at the moment of explosion is about 1800° C. Whatever the actual temperature, the heat is too great to be permitted. Heat is carried off continuously by a cooling system. Frequently 20% to 30% of the heat is dissipated. The loss of heat causes a loss of power,

for the higher the gases are heated the greater will be their expansion and therefore the greater the power. The test of efficiency of any gas engine is the proportion between the total heat supplied and the total useful work obtained. Most gas engines are so constructed that the unburnt gases are allowed to escape at a relatively high pressure and temperature, which are thus lost, instead of being utilized.

In the internal combustion engine the maximum efficiency ranges from twenty to thirty per cent, the balance of the heating power of the fuel being wholly lost without any utilization whatever.

The following is a list of actual tests on different types of gas and oil engines (from "Gas Oil and Air Engines" — Byron Donkin.)

Name. Gas engines.	Per cent.
National	25.0
Crossley	24.0
"	22.0
"	21.2
Premier	21.0
Crossley	19.7
Atkinson	19.5
Stockfort	19.2
Atkinson	19.0
Stockport	18.0
Crossley	18.0
Trusty	17.5
Crossley	17.4
Griffin	17.0
Beck	16.7
Griffin	16.0
Premier	15.7
Beck	15.7
Forward	15.5
Crossley	15.0
Forward	15.0
Fawcett	14.5
Ajax	14.5
Crossley	14.0
Deutz	14.0
Griffin	14.0
Crossley	13.0
Clerk	13.0
Crossley	12.0
"	8.0
Brayton	6.0

Name. Oil engines.	Per cent.
Banki	27.3
Diesel	26.8
"	25.8
Banki	25.7
"	25.0
Capataine	21.9
Niel	19.2
Blackstone	18.5
Crossley	17.3
Tangye	17.1
Mesline	16.9
Dutz	16.8
Trusty	16.1
Altmann	15.9
Wenterthur	15.3
Preistamm	14.3
Griffin	13.2
Premier	13.2
Seek	12.9
Pollock	11.9
Diamler	10.5
Janieschek	8.9
Campbell	.79
Robey	5.0
Brayton	4.8

The following statement will illustrate the extent of the utilization of the heat contained in gas in the generation of power for mechanical purposes, in a highly efficient gas engine.

Gas Engine Heat Balance Account.

Heat Units	Per Cent.	Heat Accounted for	Per Cent.
Received per explosion	100	In work	22.32
		Carried off by jacket	33.96
		Carried off by exhaust gases	43.329
		Radiation, unaccounted for	1.43
		Total	100.00
Efficiency	22.32%	Loss	77.68%

In the various types of pumping plant, according to statistics compiled by the United States Bureau of Mines (Bulletin 156), the relation between the heat expended and the work performed is as follows:

51

Type of pumping plant.	Overall efficiency.
Steam, good operating conditions	7%
Steam, best operating conditions	10%
Steam, superheated steam used	12%
Suction, gas engine, good operating conditions	15%
Humphrey's gas pump, good operating conditions	20.1%
Suction, gas engine, special conditions	19%
Diesel engine, good operating conditions	29%

If the power supplied by a gas engine be used to generate electricity, there is first a fifteen per cent (15%) loss in the generator. Next, there is a line loss in transmission. Dr. Steinmetz, Chief Engineer of the General Electric Company, has estimated that the most modern type of incandescent electric light bulb ultimately and actually utilizes only about three per cent. (3%) of the heat of the fuel employed, while the old fashioned carbon filament bulb uses only one per cent. (1%), the losses in these cases again being in the form of unutilized heat.

In the arc electric light, commonly used for street lighting, there is an enormous loss of heat, not only in the generation of the electric power, but also in the lamp itself. In a summary of tests on the subject of the temperature of the arc, published by the United States Bureau of Standards (Scientific Papers No. 8) it is stated:

"In the light of the best evidence that is at present available, it would seem that the true temperature of the hottest part of the positive carbon is between 3900° and 4000° absolute."

The heat so expended in street lighting is of course a total loss.

52 These examples, which might be multiplied indefinitely, demonstrated the impossibility, in the present state of human knowledge, of fully utilizing, in manufacture the heat contained in fuel. If the true test of the waste of gas or of any other fuel be whether or not the heat therein contained is fully utilized, it would follow that practically every industrial use of fuel must be characterized as wasteful.

In my work as chemist in connection with carbon manufacture, I have tested and ascertained the average temperature of the channel plates and interior of the buildings in which such manufacture is conducted. Using a standard pyrometer of the hot and cold junction type, I have ascertained the range of temperature in the interior of carbon factory buildings to vary from 393° to 476° centrigrade. I have also had occasion to analyze the residual products after combustion of the gas in such buildings. The samples tested were obtained under conditions making it certain that they were fairly representative of the residual products. The results of such tests were extremely good, showing that the gas is not wastefully used. The following is a typical analysis:

Analysis of Flue Gas from Southern Carbon Company, Fairbanks, Louisiana.

Carbon dioxide	2.50%
Oxygen	14.30%
Carbon Monoxide	1.35%
Nitrogen	81.83%
Moisture	.01%
	100.00%

53 These analyses show that there is certainly no waste in the residual gases, as compared with flue gases from a furnace or boiler stack.

I have carefully inspected and examined the carbon factory of the Midland Carbon Company, at Cowley, Wyoming. Such factory is constructed and operated in a most efficient manner, and employs the most modern and improved machinery, appliances and processes in the manufacture of carbon black.

BRADLEY W. RUMBARGER.

Subscribed and sworn to before me this 8th day of September, 1919.

[SEAL] TOWNSEND MORGAN,
Notary Public, No. 186 New York County,
Register's No. 10108.

Commission expires March 30, 1920.

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STATE OF UTAH,
County of Salt Lake, ss:

Frederick J. Pack, being duly sworn, deposes and says:

I am professor of Geology at the University of Utah. I reside in Salt Lake City, Utah. I have spent much time in field work in the Wyoming gas fields, and I am generally familiar with their geological formations, and with the production of natural gas in Wyoming.

There are very extensive deposits or reservoirs of natural gas underlying the counties of Big Horn, Park, Fremont, Washakie, Niobrara, Carbon, Natrona and Sweetwater in said State. It is my opinion that their development has scarcely more than commenced, and that their potential productive capacity far exceeds the capacity of the wells now drilled. This opinion is shared by other geologists and producers of natural gas with whom I have conversed.

I estimate the present daily capacity of various Wyoming fields, as follows:

55

Field.	Total daily capacity in cubic feet.	
Ferris	12,000,000	20,000,000
Big Sand Draw	65,000,000	
Lance Creek	75,000,000	
Hidden Dome	60,000,000	
Byron	175,000,000	200,000,000
Iron Creek	50,000,000	
Rock Springs	10,000,000	
Medicine Bow	20,000,000	
Powder River	10,000,000	

Little Buffalo Basin—Considered by State Geologist of Wyoming capable of largest production in the State.
Oregon Basin—Considered by State Geologist second largest in State.

These estimates are prepared in part from my own field data, in part from data furnished me by Dr. Hintze, geologist for the Producers and Refiners Corporation which operates in the Big Sand Draw field, and in part from information furnished me by the State Geologist of Wyoming.

From the above data and from my general knowledge of the subject and field experience, I have no hesitation in saying that the aggregate capacity of the existing wells in my opinion exceeds six hundred and fifty million (650,000,000) cubic feet per day, and that this production could be largely augmented if the demands for natural gas in said State warranted.

The wells of the Utah-Wyoming Consolidated Oil Company, of which I am president, in Section 33, Township 56 North
56 Range 97 West were drilled upon locations selected by me, and were capped and shut in on account of inability of said company to dispose of or market the gas therefrom, for several years prior to the time that supply of gas therefrom to the Midland Car-

lon Company was commenced, said Company being the first to find means to utilize the gas from said wells in commercial quantities.

FREDERICK J. PACK.

Subscribed and sworn to before me this 25th day of September, 1919.

[SEAL.] G. C. DUNFORD,
Notary Public.

57 STATE OF WYOMING,
County of Hot Springs, ss:

W. S. Hoskins being duly sworn, deposes and says:

I have for over thirty years been engaged in practical field work in drilling for natural gas, and developing natural gas fields, and in the construction and operation of factories for manufacture of carbon black from natural gas. I have examined many gas fields in Pennsylvania, West Virginia, Louisiana, Ohio, Indiana, Oklahoma and Wyoming and I am familiar with the methods of determining the capacity of gas wells. I designed and supervised the erection of the carbon plant of the Midland Carbon Company at Cowley, Wyoming. I have also built or designed a number of other carbon factories in various states for other companies.

From my experience and observation and the knowledge and information acquired by me during the past three years, a large part of which I have spent in Wyoming I estimate the present
58 daily capacity of those domes and anticlines in Wyoming, concerning which I have sufficient knowledge and information to form a judgment as follows:

Location.	Cubic feet per day.
Byron and Garland Domes	187,000,000
Oregon Basin (2 domes)	100,000,000
Hidden Dome	60,000,000
Buffalo Basin	100,000,000
Big Sand Draw	100,000,000
Torch Light	5,000,000
Lance Creek	75,000,000
Grass Creek	10,000,000
Rock Springs	10,000,000
Golden Eagle Dome	10,000,000
Powder River	10,000,000
Total	667,000,000

There are in addition other localities where gas is produced in Wyoming, but concerning which I have not sufficient information to base an estimate.

The wells in the Byron and Garland domes located in Township 56, North Range 97 West, about six miles from Cowley, have in my judgment an aggregate capacity of approximately one hundred and eighty seven million (187,000,000) cubic feet per day, which far

exceeds all demands for natural gas on the part of the communities located within ten (10) miles thereof.

In said gas field, and in other sections of Wyoming, there are gas wells capped and shut in having a potential capacity of hundreds of millions of cubic feet of natural gas per day.

Instances of such wells capped and shut in at the present time within ten miles of Cowley are the following:

59

Well.	Estimated capacity per day.
Byron Union Gas & Oil Company	10,000,000
Carter Oil Company	40,000,000
Allen Oil Company	40,000,000
Wise & Jackson	17,000,000
Total	107,000,000

There is certainly no scarcity of natural gas in the locality in Wyoming in which the business of carbon manufacture is conducted.

I have also personally seen in the State of Wyoming during the present year operations for extraction of gasoline from natural gas being carried on upon a large scale at the rate of several million cubic feet per day, and the residue of the gas, after gasoline extraction being actually blown off into the open air, no means whatever being provided for the further utilization of said gas. I have also seen several wells in various sections of Wyoming during the present year left open, and the gas escaping freely therefrom into the atmosphere. These circumstances are referred to as showing the plentifulness of natural gas, and slight value placed thereon by operators in said State.

Such waste is very common in gas fields where there is no market for gas in commercial quantities, because it is, unfortunately, natural to disregard that which has little or no present value. It has invariably been my observation and experience that the carbon industry, by creating a market for natural gas in whatever regions it has located, has to a marked degree encouraged conservation and prevented waste, since a commodity which can be readily sold in substantial quantities is not as a rule neglected or wasted by the owner.

60 The Occidental Oil & Gas Company, complainant herein, sold to the Cowley Gas Company for distribution in the Town of Cowley, Wyoming, during the twelve months ending August 1 1919, a total of five million eight hundred and forty-four thousand, eight hundred and seventy-seven (5,844,877) cubic feet of natural gas. This was all the gas consumed in said Town of Cowley during said year, the entire supply of gas to said town being furnished and delivered at a point near said factory by said Occidental Oil & Gas Company. The citizens of said town did not have gas for use in their homes until said company laid its pipe line and provided a supply of gas for their use.

Most of the gas for operation of the carbon Factory of the Midland Carbon Company is derived from two (2) wells there being two 2

other wells from which it might draw gas if needed. All of said wells, and all of the gas lands owned or leased by the Occidental Oil & Gas Company, are located within ten miles of the towns of Lovell and Cowley, and within ten miles of two industrial plants, to wit: The plant of the Eastern Fuel Company, which extracts the gasoline from said gas, used by said Midland Carbon Company, and the plant of the Great Western Sugar Company.

There is no gas well within a distance of fifty (50) miles of said carbon factory that is not also located within ten miles of some incorporated town or industrial plant.

Neither said Occidental Oil & Gas Company nor said Midland Carbon Company is engaged in any manufacturing business other than the manufacture of carbon black from natural gas after extraction of the gasoline therefrom.

61 There is no other manufacturing plant in operation within a distance of several miles from said carbon factory and gasoline works.

The only dwellings within an area of three square miles surrounding said carbon factory are a railroad section-house and station, and about eighteen small frame houses, mostly occupied by the company's workmen.

Said factory of the Midland Carbon Company is erected and equipped according to the most improved and best known designs for the manufacture of carbon black, and employs the most efficient processes, machinery and appliances for the purpose. I know of no way in which the yield of carbon black at said factory could be improved without sacrificing the quality of the product and rendering it unfit for the purposes for which it is used.

W. S. HOSKINS.

Subscribed and sworn to before me this 25th day of September, 1919.

C. W. AXTELL,
Notary Public. [SEAL.]

My commission expires January 16, 1921.

62 *Affidavit of F. F. Curtze.*

STATE OF WYOMING,
County of Hot Springs, ss:

F. F. Curtze being duly sworn deposes and says:—

I am vice-president of both complainants in this cause, and verified the bill of complaint herein.

A temporary restraining order is respectfully prayed for under the authority specifically conferred by Section 266 of the Federal Judicial Code, restraining the defendants from enforcing or seeking to enforce against the complainants the provisions of the act set forth in the bill of complaint, pending the hearing and determination of complainants' application for an interlocutory injunction, for the reason that unless said restraining order is granted complainants

will suffer irreparable injury and loss, for which they will be unable to obtain even the slightest redress or compensation.

63 Such irreparable loss and injury will result from the following facts:

1. The effect of the statute whose constitutionality is involved in this cause is to require the complainants absolutely and completely to cease and shut down their entire business in which nearly seven hundred thousand dollars ($700,000.00) has been invested, since it is impossible to comply with the provisions of said statute. Complainants are not engaged in any other business, nor are they engaged in business elsewhere than in the vicinity of Cooley, as alleged in the bill of complaint. Consequently all use, revenue and income from their large investment will wholly cease.

2. By the operation of said statute the production of approximately sixteen hundred (1600) gallons of High-gravity gasoline per day and approximately thirteen thousand (13,000) pounds per day of carbon black will be wholly lost to the complainants. These two products are of the aggregate market value of sixteen hundred and twenty dollars ($1620.00) per day.

3. All the black produced or capable of being produced at said factory during the calendar year 1918 had previously to the enactment of said law been sold under contract by the selling agents of the Midland Carbon Company to customers for delivery during said year 1918; and the said act, by preventing the manufacture of said black, will disrupt the business of said complainant, result in irreparable injury and harm to the good will of said business, impair its relations with its customers, and cause serious loss, detriment and inconvenience to its said customers who depend upon receiving its product, and result in claims, disputes and suits. Such injury

64 to its established trade is incapable of exact computation.

4. Both complainants will be disabled from performance of the contracts for purchase of gas made prior to the enactment of said statute (Exhibits A. and B. attached to the bill of complaint) and from taking the daily minimum quantity of gas therein specified, and they will thereby be involved in disputes and difficulties with the other party to said contracts, and the continuance and validity of said contracts will be imperilled and jeopardized.

5. The complainants' laborers and employes will be thrown out of employment, and will seek other occupations, and thereby at a time when the difficulty of obtaining trained employes is very great, the complainants' business will be damaged and irreparably injured by the loss of skilled and experienced employes.

6. Said factory buildings, ninety in number, are constructed entirely of steel and iron, and are necessarily unpainted. They are kept constantly heated by the heat generated in carbon manufacture, and there is no other means of heating them. Experience has shown that completely to close down a carbon plant, even for a short period of time, results in the rapid deterioration of plates, burners, connec-

tions, and interior side walls and roofs, and the formation of rust, scale and corrosion, which not only materially injures the buildings and their equipment, but impairs the quality of the product after manufacturing operations are resumed. The purposes for which carbon black is used, such as printing inks, rubber compounds, carbon papers, photographic records, etc. imperatively require a product of the utmost purity, and the presence of the least iron rust in said product would render it unfit for these uses.

65 I am advised by my attorneys that under Section 266 of the Judicial Code applications for temporary injunction in cases like the present must be heard by three Federal Judges, and that therefore a much longer time is likely to ensue before complainants can have their day in court, than in ordinary cases where the application for an interlocutory injunction may be summarily heard on short notice by a single judge of this Honorable Court. Consequently the injury to and interruption of complainants' business will be much more protracted than would ordinarily be the case, if a restraining order is not granted. Even if the time said business is discontinued is relatively short, it would undoubtedly take several weeks longer, for the reasons above pointed out, before the necessary employes could be found and instructed, and the necessary work done upon the factory, so that operations could be resumed.

In this suit the complainants are asserting their right under the constitution of the United States to carry on a lawful and useful business, causing no injury to the public health, order or safety, in which they have invested a large sum, and there is no one whom they can sue or from whom they can hope to recover any compensation or redress for the paralysis of their business that must ensue from even a temporary violation of their constitutional rights.

As bearing upon the interest of the public in the relief herein prayed for, I respectfully point out

1. That the complainants are using the gas from only four (4) wells, and are interfering with nobody's gas supply, but on the contrary are themselves supplying all the gas consumed in the adjoining town of Cowley, and that there is no shortage of natural gas in said locality, but on the contrary a vast surplus over and above the needs of all persons, including the complainants, so that neither the public nor any individual is likely to suffer if complainants

66 prayer for a restraining order be granted.

2. That the production of carbon black at said factory amounts to about nine per cent (9%) of the total production of said commodity in the United States, and that at the present time when the vital economic need of the nation is production, the general interest of the public will be promoted by rendering it possible for the production of these widely used commodities to continue without interruption.

F. F. CURTZE.

Subscribed and sworn to before me this 24th day of September, 1919.

[SEAL.] C. W. ANTELL,
Notary Public.

My commission expires January 16th, 1921.

67 Endorsements: No. 1080. In the District Court of the United States, District of Wyoming. Midland Carbon Company and Occidental Oil & Gas Company, Complainants, vs. William L. Walls, Attorney-General of the State of Wyoming, et al., Defendants. Affidavits. Filed Sep. 29, 1919. Charles J. Ohnhaus, Clerk. Lacey & Lacey, Cheyenne, Wyo., for Complainants.

68 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL & GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney-General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Upon consideration of the foregoing bill of complaint with the exhibits and affidavits, and the Court considering that the application for an interlocutory injunction should be heard and determined by three judges, it is

Ordered and decreed, that the defendants named in said Bill of Complaint, show cause on a day to be hereafter fixed why an interlocutory injunction pendente lite shall not issue herein enjoining and restraining them and each of them from enforcing or attempting to enforce or causing to be enforced against the complainants and each of them and their respective officers, agents and employees the provisions of Chapter 125 of the Session Laws of 1919 of the State of Wyoming, and it is further

Ordered and decreed, that meanwhile a temporary restraining order be and it is hereby granted, allowed and issued restraining and enjoining said defendants and each of them to like effect until the hearing and determination of the application of said complainants for an interlocutory injunction pendente lite.

This temporary restraining order to become effective upon the filing of a bond in the sum of $1000.00, with sufficient sureties and conditions as required by law.

Done and signed at Cheyenne this 29th day of September, 1919.

JOHN A. RINER,
Judge.

69 Endorsements: No. 1080. In the District Court, District of Wyoming. Midland Carbon Company and Occidental Oil & Gas Company, Complainants, vs. William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, prosecuting attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants. Temporary Restraining Order. Filed Sep. 29, 1919. Charles J. Ohnhaus, Clerk.

70 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and GENERAL GAS AND GAS COMPANY, Complainants,

v.

WILLIAM L. WALLS, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Answer.

Come now the several defendants above named, and for answer unto the Bill of Complaint herein, aver and say:

1. They admit all and singular the allegations of Paragraph First of said complaint.

2. They deny all and singular the allegations of Paragraph Second thereof.

3. They admit the allegations of Paragraph Third, save and except those with reference to the cost of the plant or factory therein referred to, the method of operation thereof, the processes employed therein, the amount of production thereof, the uses of said products, and as to whether said plant or factory can or cannot be used for purposes other than the manufacture of carbon black, these defendants are without knowledge.

4. With respect to the allegations of the first section of Paragraph Fourth of said complaint, these defendants aver that they are without knowledge, except that they admit the substance known

71 as carbon black has a wide variety of uses; they deny that it is capable only of manufacture by burning natural gas, but upon the contrary, allege that the same may be and can be produced from artificial gas as well as from other substances.

And with reference to the allegation that in none of the States of Pennsylvania, West Virginia, Kentucky, Ohio, Indiana, Louisiana, Oklahoma and Montana has the use of natural gas for carbon manufacture ever at any time been prohibited, restricted or limited in any manner, these defendants aver that they are informed and verily believe and so state the fact to be, that in some of said States, to-wit, West Virginia and Louisiana, at various times heretofore, legislation restricting and even prohibiting the use of natural gas for the manufacture of carbon black has many times been attempted; that in each instance the various persons, firms and corporations engaged in said business have succeeded in preventing the passage and adoption of such proposed legislation. And these defendants

further allege, on information and belief, that during the active pendency of the late war, the United States Fuel Administration classified the burning and use of natural gas for the manufacture of carbon black, as a wasteful use of natural resources, and persuaded and induced a number of manufacturers of said carbon black to desist their operations in the State of West Virginia.

And as to whether said industry originated in Pennsylvania in 1864 and has since been continuously prosecuted, these defendants are without knowledge.

These defendants admit that the carbon black industry, so-called has contributed to the development of the gas resources of the country, but allege that many of such resources have been only
72 so developed, to be soon partially, if not wholly, depleted thereby. And with reference to all and singular the remaining allegations of the third section of said Paragraph Fourth, these defendants are without knowledge.

And further answering said paragraph, these defendants aver that all and singular of the same is wholly immaterial to any matter of action attempted to be stated by said bill.

5. With reference to all and singular the allegations of Paragraph Fifth, these defendants are wholly without knowledge, and further aver all and singular the allegations thereof to be wholly immaterial.

6. That as regards Paragraph Sixth and all thereof, these defendants are without knowledge, and further aver all and singular of the same to be wholly immaterial.

7. That as regards all and singular the allegations of Paragraph Seventh, these defendants are without knowledge.

8. That as regards all and singular the allegations of Paragraph Eighth, these defendants are without knowledge.

9. That as regards all and singular the allegations of Paragraph Ninth, these defendants are without knowledge.

10. These defendants admit all and singular the allegations of Paragraph Tenth.

11. These defendants admit all and singular the allegations of paragraph Eleventh.

73 12. These defendants deny all and singular the allegations of Paragraph Twelfth.

13. That with respect to the allegations of Paragraph Thirteenth, these defendants deny that there is any justification or reasonable necessity for such destruction of the contractual and property rights of these complainants as must necessarily result in carrying said act into effect, and these defendants deny that to enforce the provisions of said act will be attended with such consequences.

They admit the population of the Town of Cowley and that of the Town of Lovell and that of the County of Big Horn to be ap-

proximately as alleged. That as respects all and singular the remaining allegations of said paragraph, these defendants are without knowledge, except that with reference to the statement therein contained that there is no reduction of the supply of natural gas in the said region for domestic or industrial use, these defendants allege, upon information and belief, the fact to be that by reason and in consequence of the use thereof and therefrom, of the natural gas there flowing, for the purpose of the manufacture of carbon black, the wells from which said gas is so used have been, in the year and one half last past, about one-half depleted and exhausted of their product; that within the year and one-half last past and in consequence of such and said use of said gas, the initial pressure of said wells and all thereof, has declined from five hundred (500) pounds to not to exceed two hundred pounds pressure; that such and said result has so ensued and appertains to all of the wells in the region or vicinity of those from which is used the natural gas for the manufacture of said carbon black; that it is and has been estimated by the United States Bureau of Mines and other competent to estimate the same, that within two years, or at most, within three years from the present time, all of said wells will have been utterly and completely depleted. These defendants further say that such depletion will relate not only to said wells furnishing gas for the manufacture of carbon black, but will likewise relate to said entire region and vicinity.

74

And these defendants further allege that it has likewise and recently been estimated and ascertained that in preventing the use of said natural gas for the manufacture of carbon black, the said Town of Lovell and County and the said County of Big Horn and all industrial plants therein and thereat will be afforded a supply of gas for all domestic and industrial use for a period thereof of at least thirty years, but that in allowing said gas to be used for the manufacture of carbon black as aforesaid neither said town nor the said county nor the people therein and thereat, nor the industrial enterprises thereof, will have any natural gas whatsoever on a permanent thereof to exceed three years.

14. These defendants deny that the use of natural gas by the persons used is not a wasteful use thereof, but upon the contrary, allege such and said use to be wasteful. They admit that complainants procure from each [illegible] feet of natural gas consumed, approximately one and three-quarters (1¾) pounds of carbon black, but they aver and allege that each and every [illegible] feet of said natural gas contains from thirty-five (35) to forty (40) pounds of carbon; that the inefficiency of the process used by complainants is very high, ranging only from 2% to 4%.

75

That with respect to all and singular the remaining allegations of said Paragraph Fourteenth, these defendants are without knowledge.

15. That with respect to all and singular the allegations of Paragraph Fifteenth, these defendants are without knowledge, except

that they deny that the failure to utilize the heat contained in natural gas in the manufacture of carbon black does not constitute a wasteful use thereof.

16. That as to whether or not the complainants own or control any gas lands other than those by them alleged to be owned by them, these defendants are without knowledge, and these defendants deny that the enforcement of the act in question will, either wholly or in part, ruin or destroy their said business, profits or income, and in this behalf state and show unto this Honorable Court that the said act merely prescribes the place or places from which said business may or may not draw its source of supply for the manufacture of carbon black. That no results of destruction or ruination to said business can or will ensue, other than to require either a removal thereof or the acquisition of a new source of supply of natural gas. That such, in any event, would be the result upon the exhaustion and depletion of said natural gas in the vicinity now utilized by said complainants. And these defendants further aver that said complainants and all others engaged in the same enterprise are what is commonly designated as "tramp industries," that they are, perforce necessity, itinerant; that they from time to time locate at different places where natural gas is to be had; that all and singular their buildings, appurtenances and appliances are readily removable and transportable and may be removed and transported without any loss whatsoever, save and except the cost of such transportation.

That as to whether complainants will suffer loss under any of their said contracts, these defendants are without knowledge, but aver and allege that no such loss will or can be irreparable. These defendants further allege that it appears from said Bill of Complaint that the income from said plant to said complainants in each and every year practically reimburse them for all initial outlay; and that with respect to said contracts to manufacture carbon black from the particular well or wells in the particular locality of said plants, complainants are wholly without any vested rights whatsoever, but that same are at all times subject to the police power of the State of Wyoming.

17. These defendants deny that said statute is either arbitrary or oppressive; deny that same is not a true statute of conservation as in paragraph Seventeenth alleged; and in this behalf, defendants allege and show to this Honorable Court:

(a) That the use of natural gas for the manufacture of carbon black alone, is a wasteful use thereof;

(b) That it is within the power of the sovereign State of Wyoming to protect and conserve and to pass laws to protect and conserve its natural resources and to prevent the same from being dissipated and destroyed;

(c) That natural gas is one of the natural resources of said State of Wyoming, and is a fleeting and evanescent substance, incapable of being replaced or restored when once withdrawn from the earth;

(*d*) That the act in question is a competent and valid exercise of the police power of the State;

(*e*) That said act, in effect, merely prescribes the right of
77 paramount use of said natural gas for domestic and industrial purposes;

(*f*) That said act, while manifestly designed to discourage the use of natural gas for the manufacture of carbon black, does not prohibit such use;

(*g*) That said act, in order to enforce the right of paramount use for domestic and industrial uses and to conserve the supply therefor, merely prescribes a territorial radius or limit from which natural gas shall not be withdrawn for the manufacture of carbon black.

(1) These defendants deny the effect ascribed to said act by complainants and set forth in subdivision (1) of Paragraph Seventeenth, and further allege that any such consequences are wholly immaterial and not a criterion of the validity of said act;

(2) These defendants deny said act arbitrarily classifies persons engaged in the business of carbon black, as in subdivision (2) of Paragraph Seventeenth alleged, but upon the contrary, say that the prohibition or restriction in said act provided is not directed against any person or persons, but is directed against the source of supply of gas for the designated purposes, and further allege the delinquency to consist only of the place or places from which said gas may be withdrawn for the manufacture of carbon, preserving to incorporated towns and industrial plants a ten mile radius for their domestic uses and manufacturing needs;

(3) These defendants deny that said act discriminates between owners and lessees of gas wells, as in subdivision (3) of Paragraph Seventeenth alleged, except that those within the prescribed area or radius shall dispose of their product only for domestic and industrial uses and not for purposes defined as and declared to be wasteful;

78 (4) These defendants deny the allegations of subdivision (4) of Paragraph Seventeenth, but upon the contrary, allege that said act prohibits the use, as well as the sale, of gas within the prescribed radius for the several purposes declared to be wasteful.

(5) These defendants admit that said act renders the lawfulness of the use or sale of natural gas for carbon manufacture without heat utilization from a well located within ten miles of a town, wholly dependent upon whether or not said town is incorporated; and further allege such criterion therefor to be wholly valid and competent and to rest solely within the legislative discretion.

(6) These defendants allege, with respect to the allegations of subdivision (6) of Paragraph Seventeenth, that it is entirely a valid and competent exercise of the police power of the State and of the

legislative discretion to control the use and sale of said natural gas within any reasonable radius, irrespective of then present local requirements, or the extent or adequacy of the gas supply, and that the said legislature may competently conserve either all or any part of such natural resources.

(7) These defendants allege, with respect to the allegations of subdivision (7) of Paragraph Seventeenth, that the act in question defines the use of gas for the manufacture of carbon black to be wasteful, and it is wholly immaterial that it has not defined the other uses thereof to be wasteful or certain uses of other fuels to be wasteful, and deny that requirement is unreasonable to provide that the heat contained in said fuel shall be fully utilized for other manufacturing purposes, and in this behalf further allege that it is manifestly the legislative intent to prevent the waste it defines
79 and hence to conserve the natural resources of the State.

(8) These defendants deny all and singular the allegations of subdivision (8) of said Paragraph Seventeenth.

18. These defendants admit the allegations of Paragraph Eighteenth.

19. These defendants deny all and singular the allegations of Paragraph Nineteenth, except as to whether complainants have been advised by counsel with respect to their remedies at law, these defendants are without knowledge.

20. And further answering, defendants allege and say the Bill of Complaint herein wholly fails to allege any matter of equity entitling the complainants to the relief prayed for therein, or to any relief.

Wherefore, defendants pray that said complaint be dismissed and in all things denied; that the temporary restraining order heretofore issued herein be forthwith and forever dissolved; that these defendants go thence with their costs herein expended and to be taxed, and for all such other and further relief as may be just and equitable.

WILLIAM L. WALLS,
Attorney General of the State of Wyoming, Defendant.

FRANK A. LITTLE,
Prosecuting Attorney of Big Horn County, Defendant.

R. D. CAREY,
Governor of the State of Wyoming, Defendant.

W. L. WALLS &
T. PAUL WILCOX,
Solicitors for Defendants.

HENRY E. LUTZ,
Of Counsel, Denver, Colo.

80 STATE OF WYOMING,
County of Laramie, ss:

William L. Walls, of lawful age, being first duly sworn, on his oath deposes and says:

That he is the Attorney General of the State of Wyoming, and in that capacity, one of the defendants above named; that he has read the above and foregoing Answer and knows the contents thereof, and that the same is true as of his own knowledge, save and except those matters therein stated on information and belief, and as to such matters, he believes it to be true.

WILLIAM L. WALLS.

Subscribed and sworn to before me this 22d day of October, A. D. 1919. My commission expires March 19th, 1921.

[SEAL.] ELLA E. SCHLOREDT,
Notary Public.

Endorsements: No. 1080. Civil. In the District Court of the United States for the District of Wyoming. Midland Carbon Company, et al., Complainants, v. William L. Walls, et al., Defendants. In Equity. Answer. Filed Oct. 22, 1919. Charles J. Ohnhaus, Clerk.

81 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants.

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Motion to Dissolve Temporary Restraining Order.

Come now the several defendants above named, by their solicitors, and move this Honorable Court that the temporary restraining order heretofore, and on, to-wit, October 6, A. D. 1919, herein granted and allowed, be now and forthwith dissolved, and as grounds for this motion, show and allege:

1. That by the provisions and limitations of Section 266 of the Judicial Code of the United States, this Honorable Court is only authorized and empowered to grant such or any restraining order, save if of opinion that irreparable loss and damage would result to the complainants, and that in this cause no such irreparable loss or damage can or will ensue to said complainants by an enforcement of

he act complained of, in that and for the reason that their losses, f any, could be and would be hereafter made up and compensated y being permitted to conduct and operate their said plants, should his Honorable Court later hold the said law of the State of Wyoming y them in their bill attacked, to be unconstitutional. In other ords, that no element of irreparable loss in a legal or equitable ense is present in this cause, since, were complainants to be obliged o suspend their operations, it would merely entail a postponement f the receipt by them of the profits of their said business.

2. That the Act of the legislature of the said State of Wyoming y complainants sought to be declared unconstitutional, is pre-sumptively valid, and not presumptively invalid.

82 3. That complainants are utilizing and withdrawing from the earth natural gas at the rate of approximately 10,000,000 ubic feet per day, and the same can never be replaced or restored, and if said complainants are permitted to operate and conduct their said enterprise for an indefinite, or even a comparatively limited period of time, the questions by them raised in their said bill and put in issue by the answer of these defendants heretofore filed herein, will become moot or academic questions only, since the said gas supply is necessarily each day becoming more and more depleted and exhausted, and will briefly become entirely so.

4. That it is the contemplation and requirement of said section 266 of the said Judicial Code and all suits seeking to restrain any state officer from the enforcement of any state law shall be immediately heard, and that any and all restraining orders shall be of the briefest duration, and that such matter shall be in every way expedited.

5. This motion will be based upon the answer of the defendants heretofore filed herein, affidavits and such other testimony as it may please the Court to hear, in connection herewith.

Wherefore, defendants move and pray this Honorable Court that the temporary restraining order heretofore herein granted, be now and forthwith dissolved, vacated and set aside, and that a day be appointed by this Honorable Court for the hearing and determination of the application for an interlocutory injunction, and to such end that this Honorable Court call to its assistance two additional judges, as by the Statute in such case made and provided.

W. L. WALLS,
T. P. WILCOX,
Solicitors for Defendants.

HENRY E. LUTZ,
Of Counsel.

83 Endorsements: No. 1080 Civil. In the District Court of the United States, for the District of Wyoming. In Equity. Midland Carbon Co. et al., vs. William L. Walls, etc., et al. Motion

to Dissolve Temporary Restraining Order. Filed Oct. 31, 1919. Charles J. Ohnhaus, Clerk.

84 *Affidavit of Geo. J. Geneaux.*

Geo. J. Geneaux, being first duly sworn on his oath deposes and says:

My name is Geo. J. Geneaux. I reside at Lovell, Wyoming. I am at the present time general superintendent and Manager of the Big Horn Glass Company, which company now has in course of construction in the city of Lovell, Wyoming, a glass manufacturing plant, which, when completed will represent an investment of approximately $150,000.00. I have been engaged in the manufacture of and sale and distribution of glass products, manufactured in various parts of the United States for the past 35 years and am thoroughly familiar with all branches of this business.

In the location of a glass manufacturing plant, it is necessary that a particular kind of sand used in such manufacture be available together with a sufficient supply of natural gas. This latter factor is of the most important, however, as the sand necessary may be found in various localities, but if cheap fuel is not available, a glass factory cannot be operated at a profit. The presence of this particular sand in quantity together with the presence of natural gas in the vicinity of Lovell was the controlling factor in establishing such a glass manufacturing plant in the locality, however the presence of a sufficient quantity of natural gas is the chief factor.

This plant when completed, and running at full capacity will consume approximately 1,000,000 cubic feet of gas per day, and will employ about 200 men. I estimate that the plant will be
85 completed and in operation not later than Febry. 1st. 1920.

GEO. J. GENEAUX.

Subscribed and sworn to before me this 28th day of October, 1919.

[SEAL.] LUKENA M. STRYKER,
Notary Public.

My commission expires Jan. 20, 1923.

Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Co., et al., vs. William L. Walls, etc., et al. Affidavit of Geo. J. Geneaux. Filed Nov. 8, 1919. Charles J. Ohnhaus, Clerk.

86 *Affidavit of Adolph Hansen.*

Adolph Hansen, being first duly sworn on his oath deposes and says:

My name is Adolph Hansen. I reside at Lovell, Wyoming. I am President of the Big Horn Glass Company, which company has now in course of construction a glass manufacturing plant at Lovell, Wyoming. This company is incorporated for $250,000.00 and is

being financed entirely by local capital. Construction of the plant was started on October 6th, 1919 and is being hurried to completion as rapidly as possible. When completed, this plant will employ 200 men and when running at full capacity its pay roll will amount to $40,000.00 a week. For the operation of a glass manufacturing plant, it is absolutely necessary to have cheap fuel and the presence of natural gas in the vicinity of Lovell was the principal inducement for the establishment of this plant in Lovell, Wyoming. When completed and running at full capacity we estimate that this plant will consume approximately a million cubic feet of gas per day.

ADOLPH HANSEN.

Subscribed in my presence and sworn to before me this 28th day of October, 1919.

[SEAL.] LURENA M. STRYKER,

Notary Public.

My commission expires Jan. 20, 1923.

87 Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Co., et al., vs. William L. Walls, etc., et al. Affidavit of Adolph Hansen. Filed Nov. 8, 1919. Charles J. Ohnhaus, Clerk.

88 *Affidavit of H. S. Jolley.*

H. S. Jolley, being first duly sworn on his oath deposes and says: My name is H. S. Jolley. I reside at Lovell, Wyoming. I have so resided in Lovell for 19 years last past. I am President of the Big Horn Basin Clay Products Company, which company has now in course of construction, a plant for the manufacture of tile, brick and other clay products in Lovell, Wyoming. This company is incorporated for $300,000.00 and a large proportion of the stock is held by local capital. There is a ready market for the product of this plant in Lovell and vicinity, due to the necessity for drainage of large areas of irrigated land and the excessive cost of tile when shipped in from distant points. There are large deposits of raw material for an industry of this character in the vicinity of Lovell and the fact that Natural gas is available for fuel made the location of such a plant in this vicinity feasible. It is absolutely necessary for the operation of a plant of this character that an adequate supply of cheap fuel be available, and the cost of any other fuel than Natural gas would make the operation of such a plant in Lovell prohibitive.

H. S. JOLLEY.

Subscribed and sworn to before me this 28 day of October, 1919.

[SEAL.] LURENA M. STRYKER,
Notary Public.

My commission expires Jan. 20, 1923.

89 Endorsements: No. 1080. In the District Court of the United States, for the District of Wyoming. In Equity. Midland Carbon Company, et al. vs. William L. Walls, etc., et al. Affidavit of H. S. Jolley. Filed Nov. 8, 1919. Charles J. Ohnhaus, Clerk.

90 *Affidavit of R. E. Richardson.*

R. E. Richardson, being first duly sworn on his oath, deposes and says:

My name is R. E. Richardson. I reside in Lovell, Wyo. By profession, I am a Civil Engineer and for the past three and a half years, I have been engaged as Manager of the Lovell Gas and Electric Company, which company is engaged in the business of the production, sale, and distribution of Natural Gas and electricity. The natural gas supply of this company is obtained from what is known as the Garland Dome, situated about seven and one half miles Southwest from Lovell and about six and one half miles Southwest of Cowley, Wyoming. There are three known gas sands in this structure, the first at a depth of approximately five hundred to six hundred feet, the second at a depth of fifteen hundred to seventeen hundred feet, the third at a depth of 1700 to 1900 feet.

In the first gas sand, there are two producing gas wells, one of which, is owned by the Lovell Gas and Electric Company, the other by the Occidental Oil and Gas Company. In the second gas sand, there are eight producing gas wells, two of which are owned by the Lovell Gas and Electric Company, three by the Occidental Oil and Gas Company, one by the Wise and Jackson, and two by the Ohio Oil Company. In the third gas sand there are three wells
91 owned respectively by the Allen Oil Co, The Carter Oil Company and the Ohio Oil Company. It has not been fully demonstrated that this third gas sand is a separate and distinct sand from the second, as it may be the same sand faulted downward to its present location, as these three wells are all located to the South of the supposed fault and segregated from the rest of the field. Whether or not, this is a separate sand will not be fully known until a deep well is put down North of the supposed fault and through the second sand into the next sand, if there is such a sand.

I am acquainted with three of the four wells of the Occidental Oil and Gas Company from which the gas is derived which is used by the Midland Carbon Company. These wells are drilled into the same sand in which the wells of the Lovell Gas and Electric Company are drilled. This sand is a free flowing sand, that is, one in which the gas has free access from one part of the field to the other, consequently the gas pressure would be approximately the same at all the wells drilled into this sand. The pressure at the wells of the Lovell Gas and Electric Company in October 1916, which is the first knowledge I had of them, was 485 pounds. This pressure continued approximately the same until the end of 1917, at which time the Midland Carbon Company began their operations, since which time the pressure has noticeably decreased. During the first 18

months from October, 1916 to March 1918, the decrease was 15 pounds, and from March 1918 to October 1st, 1919 the decrease has been 270 pounds. The pressure at the date of this affidavit is 199 pounds which is 41% of the pressure in October 1916. If the present consumption of gas continues for another year, there will not be sufficient gas in this field in the particular sand in question, to supply even the domestic uses of the town of Lovell. I am attaching to this deposition a chart marked Exhibit "A" which shows the decrease in pressure from this field, which chart is made from my own notes and observation and is correct. The total daily consumption from this particular sand amounts to about 15,000,000 cubic feet of gas. Of this amount, the Midwest Refining
92 Company uses about 3,000,000 feet; 11,000,000 feet are used for carbon purposes; and not over 1,000,000 feet are used for all other purposes combined. During the period prior to October 1st, 1919 there were two companies using gas from this particular sand for carbon purposes, namely the Midland Carbon Company located at Cowley, Wyoming and the Wyoming Gas Products company located at Lovell, Wyoming. The latter company having a capacity of 1/9 the size of the Midland Company used on an average of 1,160,000 cubic feet of gas per day. This company suspended operations on the 30th day of September, 1919 and the plant is being moved to a location approximately 100 miles distant in order to comply with the law.

I am familiar with the buildings and plant of the Midland Carbon Company located at Cowley, Wyoming. This plant consists of about 90 separate buildings constructed of sheet iron and steel and are constructed in such a way that they could be moved more readily than most any other character of construction, and were evidently designed with the idea of portability in mind and at the present rate of consumption of gas, they will have to be moved in any event, within a year.

The consumption of gas for domestic and industrial purposes outside of carbon manufacture in the town of Lovell for the year 1918 was 135,000,000 cubic feet, being an average daily consumption of 370,000 cubic feet. The principal industries using gas in the town of Lovell at the present time is the Great Western Sugar factory which uses about 74,000,000 cubic feet per year. There are at the present time in the course of construction in the town of Lovell, a tile factory and a glass factory, which together will consume approximately 360,000,000 cubic feet of gas per year, or an average daily consumption of approximately 1,000,000 feet.

The total flow capacity of all the gas wells now drilled in the particular field in question is approximately 200,000,000 cubic feet per day, but if these wells were allowed to flow at their full flow capacity they would be entirely exhausted in 90 days, in proof of which
93 fact, I direct attention to the fact that the use of 15,000,000 cubic feet per day of gas produced within the last 18 months has caused a loss of 57% of the available gas in the producing sand I would estimate that if the gas consumed by the carbon plant from this field was conserved that the supply available for domestic and

industrial uses in the towns of Lovell and Cowley would last for a period of at least ten years.

The plant of the Midland Carbon Company at Cowley employees not to exceed twenty men, while the tile factory and the glass factory now in course of construction at Lovell Wyo. will employ a great many more men with a pay roll of at least ten times as large as the carbon plant and which will not use more than one tenth the amount of gas consumed by the carbon company.

The Big Horn Basin comprising the counties of Park, Big Horn, Washakie and Hot Springs, contains vast quantities of clays, sands, gypsum, and lime stone suitable for the manufacture of cement, tile, plaster, lime and clay products but these resources can not be developed and made use of commercially without an adequate supply of cheap fuel. The natural gas of this region, if it is not wasted and dissipated furnishes the chief inducement to industrial enterprises locating in the various incorporated town and cities of this locality and is the only fuel available at a cost which would make the development of the above resources commercially possible.

Should the sand from which gas is now being taken for the purpose of carbon manufacture be exhausted, it is entirely problematical whether any other commercial gas sand could be developed within a distance of not less than 35 miles from the towns of Lovell and Cowley. While there are other structures in this area and possibly other gas sands below the present producing sands, there is no assurance that gas would be found in sufficient quantity to supply the needs of these communities for domestic and industrial purposes and all of such structures are more than ten miles distant from any in-
corporated town and are thus available under the law for
94 carbon manufacturing purposes, to the practical exclusion of such use for domestic and industrial purposes.

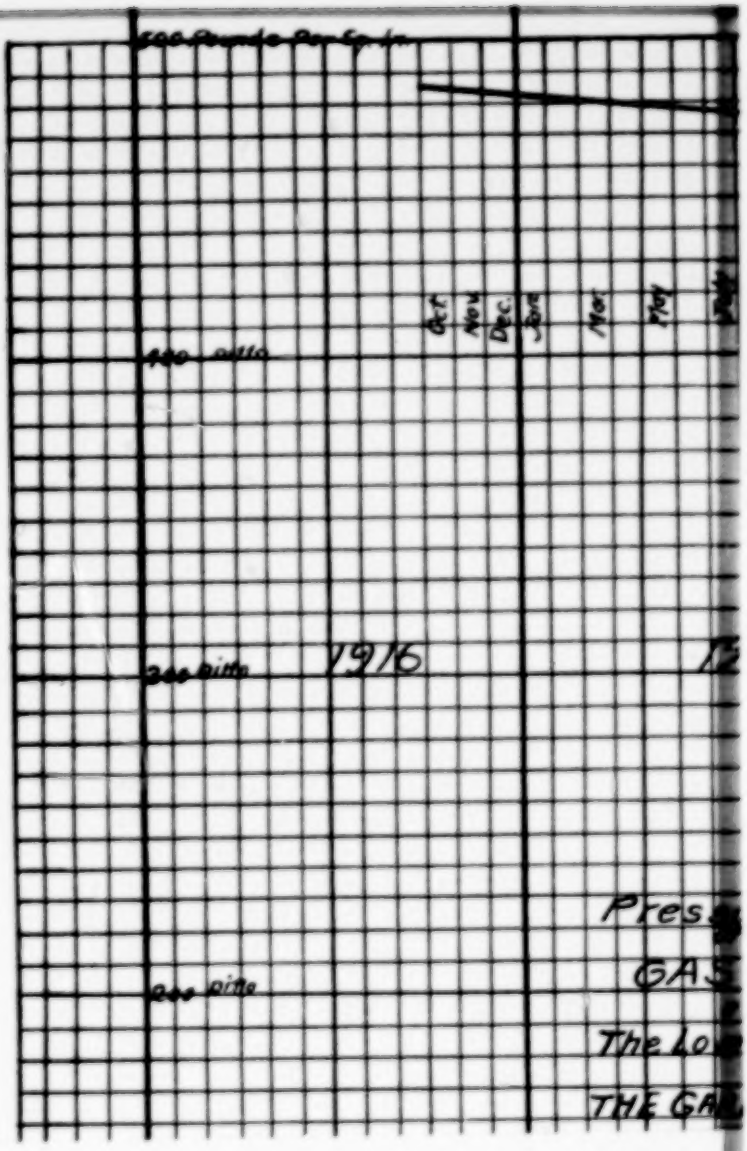
R. E. RICHARDSON.

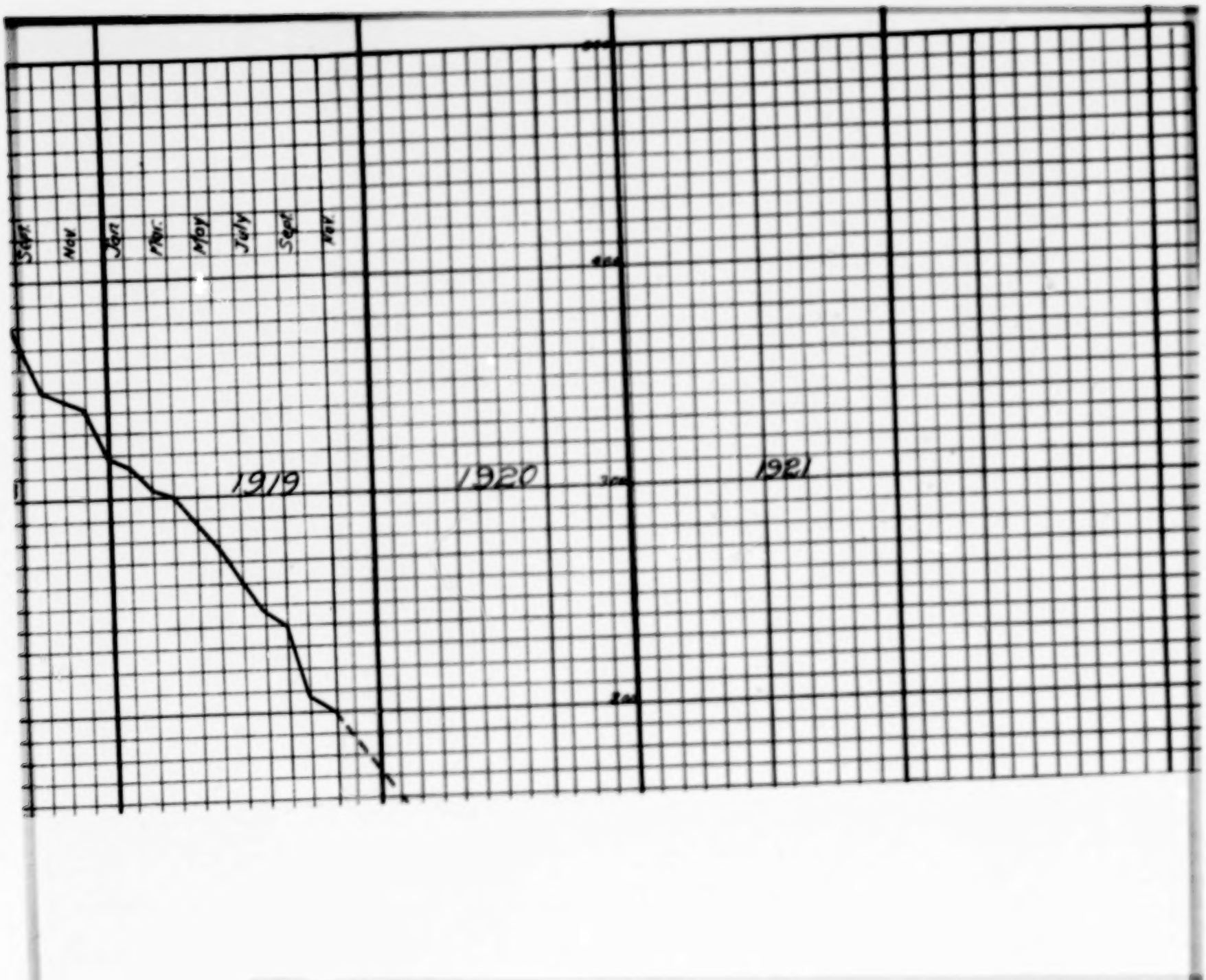
Subscribed and sworn to before me this 28th day of October, 1919.

[SEAL.] W. B. SNYDER,
Notary Public.

My commission expires *My commission expires* June 29, 1921.

(Here follows blue print marked p. 95.)


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98 Endorsement: No. 1090. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Company et al. vs. William L. Walls, etc., et al. Affidavit of E. E. Richardson. Filed Nov. 8, 1919. Charles J. Graham, clerk.

97 *Affidavit of G. B. Morgan.*

G. B. Morgan being first duly sworn on his oath, deposes and says: My name is G. B. Morgan. I am a resident of Cheyenne, Wyoming. By profession I am a geologist and mining engineer. I hold the position of State Geologist for Wyoming, my appointment to said office being August 1, 1919. Prior to that time I was Mineral Examiner and Oil Land Inspector for the United States General Land office in Wyoming, which is a branch of the Department of the Interior. I occupied that position in Wyoming for about four years, and for about one year I was engaged in private practice as a petroleum geologist and as manager of an oil well drilling company.

During the week from October 27 to October 31, inclusive, I made an investigation of the conditions at present existing in the so-called Byron gas field, especially with reference to the controversy as to gas which has been going on in that field, and I also made an examination of the plant of the Midland Carbon Company, located at Cowley, Wyoming.

The so-called Byron gas field is located on the Garland Dome or structure, which is about six and a half miles southeast of Cowley, Wyoming, and about eight miles southeast of Lovell, Wyoming. This field is practically all in Sections 33 and 34, T. 58 N., R. 97 W., old survey, or in Lots 37, 52 and 53, T. 58 N., R. 97 W., new survey. The gas from this field is piped to Cowley, to Lovell, and to the small town of Byron, and also to Greybull, Wyoming. The pipe line to Cowley, or to the Midland Carbon Company's plant, is the shortest big line from the field. I had pointed out to me in the field the several wells which are furnishing gas for these communities and industries. These wells were pointed out to me by Mr. Richardson of the Lovell Gas and Electric Company, and also by employes of the Illinois Pipe Line Company, the Midwest Refining Company, and the Occidental Oil and Gas Company, so that I am positive that there was no mistake nor misunderstanding in regard to these locations in the field.

98 I also examined the pressure meters on the wells which are furnishing gas to the town of Lovell and to the various industries therein and to the Greybull Refinery, and in addition I put a gauge on the two wells owned and operated by the Occidental Oil and Gas Company, which are furnishing gas for the Carbon plant at Cowley. It appears that these several wells are scattered over an area of about 160 acres, and also there are wells outside of this restricted area, but they are at present not producing any gas in commercial quantities for various reasons, although they may be able to produce commercially. The meter readings in the meter house operated by the Lovell Gas and Electric Company show that the average pressure for the week ending October 29th on their well

(there being only one well connected with this line) was slightly less than 200 pounds. In the meter house owned and operated by the Ohio Oil Company, taking gas from two wells, the pressure showed an average of about 195 pounds for the week. On shutting the gas off from the main line the pressure shows an increase of about fifteen pounds in both cases, i. e., the stationary pressure of the wells, or the pressure when the gas is shut in, is about 215 pounds, but when the normal use or flow of the gas is going on, the pressure ranges between 195 and 200 pounds. The gauge reading on the Occidental well on the north end of the field over a quarter of a mile from the Ohio meter station and over a half mile from the Lovell Gas and Electric meter station shows an average of 180 pounds by gauge attached directly to the well. This well was evidently flowing into the line at almost full capacity, which accounts for the low pressure reading. The gauge reading on the Occidental well in the south end of the field, which is located about half way between the Ohio station and the Lovell gas and Electric station, shows an average of 167 pounds. Apparently the well was opened to its full capacity, and in addition to that there was an enormous leakage of gas around the inside casing which would account to some extent for the extremely low pressure. As these two gas wells of the Occidental Company are connected together, the north well
99 would naturally be shut in to meet the pressure of the south well. In other words the line pressure from the two wells can not be over 167 pounds. As a matter of fact it was 165 pounds as read in the meter station of the Occidental Oil and Gas Company. These facts prove beyond doubt that the gas comes from a loose, free sand, the pressure being approximately constant in the sand in all parts of the field and only varying in different wells to a small extent in proportion to the amount of gas that is flowing therefrom. In other words the conditions show conclusively that the gas flows with great ease from one part of the field to another and that there is practically no limit to the area that one gas well will drain in this sand if allowed to flow at its full, or even one half capacity. In a tight or close grained sand this would not be the case, as the fugitive gas would have too much friction to overcome in flowing from one part of the field to another. Therefore the pressures in the different parts of the field would vary considerably and the daily flow from any one well would be small, so that with the same initial volume of gas, the life of a gas field where the gas is contained in a tight sand is naturally much longer.

In regard to the Carbon plant at Cowley, I have only to state that the main portion of the plant or the portion in which gas is burned is constructed almost entirely of a light steel construction, covered by light weight sheet iron plates which are wired to the steel frame, all of which appears to be of a very portable nature. The owners would have very little difficulty in tearing down and moving this plant from one location to another. In fact, I saw a similar, although much smaller, plant being dismantled in the town of Lovell, preparatory for shipment to another location.

The process of making carbon is simple and is similar to holding

a cold plate over an old fashioned gas jet. In fact the process used by the Midland Carbon Company is merely an incomplete combustion of gas in an insufficient amount of air, the flames from the different jets practically touching cast iron channel plates, which are
100 suspended over the flames and are moved backward and forward at a very slow rate of speed. The carbon is scraped off the plates into hoppers and carried to the packing houses by conveyors. All of this is mechanical and requires very little labor and supervision. In addition to the carbon that is deposited on the plates a vast quantity escapes into the air, because a stream of black smoke can be seen from the carbon plant, which appears to stretch along the horizon for about twenty miles.

Going back to the wells of the operating company, which is the Occidental Oil and Gas Company, I examined one well in the west end of the field, which was shut off although connected to their line. I could see that this well was shut off and upon inquiry I was reliably informed that the reason therefor was that the well was coming into water, or that it made so much water as to render it impractical for use. Another well in the same section of the field, owned by the Ohio Oil Company, is also making water, so I was informed by the employees of the several companies. I examined another well near the center of Section 29 about a mile northwest of the main part of the field, which was drilled by the Occidental Oil and Gas Company. This well is reported to be about 710 feet deep into a shallow sand, the same sand which was formerly practically exhausted near the center of the field. The pressure of this well is about the same as that of the deep sand wells, which indicates to me that the gas from the deep sand has found access to the upper sand through some well, and that this well which I am describing has obtained the benefit of that leakage. This well is apparently supplying gas for drilling purposes, and there is also a large leakage in this well between casings. This said company has abandoned a hole about three-quarters of a mile northwest of the last described well and has another rig about half a mile north of this abandoned well. The said company drilled a well in the so-called Byron structure about two and a half miles northeast of the gas field. This well is reported to be about 3000 feet deep and to be dry. There is no production from this well.

101 & 102 In conclusion, assuming that the present consumption of gas from this sand is 15,000,000 cubic feet per day (as I have been reliably informed) and that the decease in pressure for the last year has been 150 pounds, and knowing that the present pressure is approximately 200 pounds, it is a simple problem in mathematics to ascertain the future life of the field. In other words at the present rate of decrease in pressure, the field will be exhausted in sixteen months and there will be no pressure to force the gas out of the sand. On the same basis of reasoning there are approximately 7,200,000,000 cubic feet left in the sand and the present consumption is five and a half billion cubic feet per year.

G. B. MORGAN.

Subscribed and sworn to before me this 3, day of November, 1919.

ANNA K. O'CONNELL,
Notary Public.

[SEAL.]

My commission expires July 1-1923.

Endorsements: No. 1080. In the U. S. Dist. Court for the Dist. of Wyo. Midland Carbon Co., vs. Wm. L. Walls, et al. Affidavit of Morgan. Filed Nov. 8, 1919. Charles J. Ohnhaus, Clerk.

103 *Affidavit of E. D. Sessions.*

——— Sessions being duly sworn, on his oath, deposes and says:

My name is E. D. Sessions. I reside in the town of Byron, Wyoming, and have resided therein for the last 19 years. My occupation is farmer. I am intimately acquainted with the Byron and Garland gas field and live within a few miles of same. I know the field when the first wells were brought in and am familiar with all the wells in the field including those owned or controlled by the Occidental Oil and Gas Company, from which the Midland Carbon Company obtains gas for carbon black. I am aware of my own knowledge, that the pressure of the gas coming from this field in the sand from which all gas is drawn for carbon purposes, was about 500 pounds or more, at the time or prior to the use of the gas by the carbon plant. From the time that the wells were drilled and capped until the time when gas was used for carbon, the well pressures remained about the same, notwithstanding the domestic and industrial use of gas from these wells during that period. I also know that since the carbon plant has been running, the decrease in pressure has been constant and rapid. I am interested in a well called the Wise and Jackson well which is about ¼ of a mile from any other producing well in this field and over ½ of a mile from the nearest well supplying the carbon plant. This well is in the same sand as the others furnishing gas for the carbon plant and the towns of Lovell, Cowley, etc. The pressure on this well and this sand today is 200 lbs as measured by me on the 29th of October, 1919. I know that the original pressure on this sand was in excess of 500 lbs. There has been a decrease in pressure in this sand of 275 lbs. or more in the last 18 months during which time the carbon plant has been operating at full capacity. There has never been any gas taken from the Wise and Jackson well, except in cleaning out and there has been no pipe line connections to it. Yet, this well has diminished in pressure just the same as all the other wells in the sand and at approximately the same rate. I consider the use of gas for making carbon, a wasteful use of a natural resource, and that the continued use of gas for this purpose at the same rate, will deplete sand in one or two years.

If the gas from this field is dissipated or destroyed by
104 & 105 the extravagant and wasteful use such as for carbon manufacture, this affiant has no knowledge of other resource of gas to take the place of the source we now have and such loss of fuel for domestic and industrial purposes will work untold hardship on the people of this community.

E. D. SESSIONS.

Subscribed and sworn to before me this 30th day of October, 1919.

J. H. NEVILLE,
Notary Public.

[SEAL.]

My commission expires July 3, 1922.

Endorsements: No. 1080. In the U. S. Dist. Court, for the Dist. of Wyo. Midland Carbon Co., vs. Wm. L. Walls, et al. Affidavit of E. Sessions. Filed No. 8, 1919. Charles J. Ohmhaus, Clerk.

106 *Affidavit of B. A. Sessions.*

—— Sessions being first duly sworn, on his oath, deposes and says:

My name is B. A. Sessions. I reside in the town of Byron, Wyoming, and have resided therein for the last 19 years. My occupation is farmer. I am intimately acquainted with the Byron and Garland gas field and live within a few miles of same. I knew the field when the first wells were brought in and am familiar with all the wells in the field including those owned or controlled by the Occidental Oil and Gas Co., from which the Midland Carbon Co., obtains gas for carbon black. I am aware of my own knowledge, that the pressure of the gas coming from this field, in the sand from which all gas is drawn for carbon purposes, was about 500 lbs. or more, at the time or prior to the use of the gas by the carbon plant. From the time that the wells were drilled and capped until the time when gas was used for carbon, the well pressure remained about the same, notwithstanding the domestic and industrial use of gas from these wells during that period. I also know that since the carbon plant has been running, the decrease in pressure has been constant and rapid. I am interested in a well called the Wise and Jackson well which is about ¼ of a mile from any other producing well in this field, and over ½ of a mile from the nearest well supplying the carbon plant. This well is in the same sand as the others furnishing gas for the carbon plant and the towns of Lovell, Cowley, etc. The pressure on this well and this sand today is 200 lbs., as measured by me on the 29th of October, 1919. I know that the original pressure on this sand was in excess of 500 lbs. There has been a decrease of pressure in this sand of 275 lbs. or more in the last 18 months, during which time the carbon plant has been operating at full capacity. There has never been any gas taken from the Wise and Jackson well, except in cleaning out and there have been no pipe line connections to it. Yet, this well has diminished in pressure just the same as all the other wells in the sand and at approximately the same rate. I consider the use of gas for making carbon, a wasteful use of a natural resource, and that the continued use of gas for this purpose at the same rate, will deplete the same in one or two years.

107 & 108 If the gas from this field is dissipated or destroyed by the extravagant and wasteful use such as for carbon manufacture, this affiant has no knowledge of other sources of gas to take the place of the source we now have and such loss of fuel for

domestic and industrial purposes will work untold hardship on the people of this community.

B. A. SESSIONS

Subscribed and sworn to before me this 30th day of October 192

J. H. NEVILLE,
Notary Public

[SEAL.]

My Commission Expires July 3, 1922.

Endorsements: No. 1080. In the U. S. Dist. Court for the Dist of Wyo. Midland Carbon Co., vs. Wm. L. Walls, et al. Affidavit of Sessions. Filed Nov. 8, 1919. Charles J. Ohmhaus, Clerk.

109 *Affidavit of Byron Sessions.*

—— Sessions being first duly sworn, on his oath, deposes and says:

My name is Byron Sessions. I reside in the town of Byron, Wyoming, and have resided therein for the last 19 years. My occupation is farmer. I am intimately acquainted with the Byron and Garland gas field and live within a few miles of the same. I knew the field when the first wells were brought in, and am familiar with all the wells in the field including those owned or controlled by the Occidental Oil and Gas Co., from which the Midland Carbon Co. obtains gas for carbon black. I am aware of my own knowledge that the pressure of the gas coming from this field, in the sand from which all gas is drawn for carbon purposes, was about 500 lbs. or more, at the time or prior to the use of the gas by the carbon plant. From the time that the wells were drilled and capped until the time when gas was used for carbon, the well pressures remained about the same, notwithstanding the domestic and industrial use of gas from these wells during that period. I also know that since the carbon plant has been running, the decrease in pressure has been constant and rapid. I am interested in a well, called the Wise and Jackson well which is about ¼ of a mile from any other producing well in this field and over ½ mile from the nearest well supplying the carbon plant. This well is in the same sand as the others furnishing gas for the carbon plant and the towns of Lovell, Cowley, etc. The pressure on this well and this sand today is 200 lbs. as measured by me on the 29th of October, 1919. I know that the original pressure on this sand was in excess of 500 lbs. There has been a decrease in pressure in this sand of 275 lbs., or more in the last 18 months, during which time the carbon plant has been operating at full capacity. There has never been any gas taken from the Wise and Jackson well, except in cleaning out, and there have been no pipe line connections to it. Yet this well has diminished in pressure just the same as all the other wells in the sand and at approximately the same rate. I consider the use of gas for making carbon a wasteful use of a natural resource, and that the continued use of gas for this purpose at the same rate, will deplete sand in one or two years.

110 & 111 If the gas from this field is dissipated or destroyed by the extravagant and wasteful use such as for carbon manufacture, this affiant has no knowledge of other resources of gas to take the place of the source we now have and such loss of fuel for domestic and industrial purposes will work untold hardship on the people of this community.

BYRON SESSIONS.

Subscribed and sworn to before me this 30th day of October, 1919.

[SEAL.] J. H. NEVILLE,
Notary Public.

My Commission expires July 3, 1922.

Endorsements: No. 1080. In the U. S. Dist. Court for the Dist. of Wyo. Midland Carbon Co., vs. Wm. L. Walls, et al. Affidavit of Byron Sessions. Filed Nov. 8, 1919. Charles J. Ohnhaus, Clerk.

112 *Affidavit of R. C. May.*

R. C. May being first duly sworn, on his oath, deposes and says: My name is R. C. May. I reside in the City of Lovell, Wyoming, and have so resided in said city for fifteen years last past. I am at present engaged in the business of ranching and stock raising. I was a member of the House of Representatives of the 1919 Legislature of the State of Wyoming, and introduced in the House of Representatives the measure for the conservation of natural gas and prohibiting its waste in the manufacture of carbon. My sole interest in this legislation was to conserve the gas resources of the state for the use of the people of the incorporated Cities and Towns thereof for domestic and industrial purposes, as it had come to my knowledge that these resources were being rapidly depleted and would, in a space of not to exceed two years be entirely exhausted through the wasteful use of natural gas in the manufacture of carbon. I, therefore used every effort to secure the passage of legislation which had as its object the conservation of the natural resources of the State for the use and benefit of the people thereof.

R. C. MAY.

Subscribed and sworn to before me this 31st day of October, 1919.

[SEAL.] LURENA M. STRYKER,
Notary Public.

My Commission expires January 20, 1923.

Endorsements: No. 1080. In the U. S. District Court for the District of Wyoming. Midland Carbon Co., vs. Wm. L. Walls, et al. Affidavit of May. Filed Nov. 8, 1919. Charles J. Ohnhaus, Clerk.

113 *Affidavit of B. L. Tippets, Jr.*

B. L. Tippets, Jr., being first duly sworn, on his oath, deposes and says:

My name is B. L. Tippets, Jr. I reside in the town of Cowley, Wyoming, and have so resided in such town for 16 years last past. I am at present engaged in the stock and farming business. I am acquainted with the plant of the Midland Carbon Co., located at Cowley, Wyoming, and know of my own knowledge that this plant in its operation consumes large quantities of natural gas daily. I have no knowledge of the exact amount of such gas so consumed by the said Midland Carbon Company, but I am reliably informed and believe that, if such consumption of natural gas continues, the gas supply will become exhausted in a comparatively short space of time to the great injury and detriment of the people of this community, who are vitally interested in the continuance of an adequate supply of natural gas for domestic and industrial purposes. It is, therefore, my opinion that the law of the State of Wyoming relating to the conservation of natural gas and prohibiting its wasteful use for carbon purposes within ten miles of an incorporated City or Town, should be enforced.

B. L. TIPPETS, Jr.

Subscribed and sworn to before me this 29th day of October, 1919.

EMIL VATERLAUS,
Notary Public.

[SEAL.]

My commission expires January 30, 1923.

114 Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In equity. Midland Carbon Co., et al., vs. William L. Walls, etc., et al. Affidavit of B. L. Tippets, Jr. Filed Nov. 8, 1919. Charles J. Ohmhaus, Clerk.

115 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming; Frank A. Little, Prosecuting Attorney for Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Affidavit of Charles B. Mann.

Charles B. Mann, being first duly sworn, on his oath, deposes and says:

My name is Charles B. Mann. I reside in the town of Cowley, Wyoming, and have so resided in such town for 19 years last past. I am at present engaged in the General Mercantile and Sheep Business in Lovell, Wyoming. I am acquainted with the plant of the

Midland Carbon Company, located at Cowley, Wyoming, and know of my own knowledge that this plant in its operation consumes large quantities of natural gas daily. I have knowledge of the exact amount of such gas so consumed by the said Midland Carbon Company, but I am reliably informed and believe that, if such consumption of natural gas continues, the gas supply will become exhausted in a comparatively short space of time to the great injury and detriment of the people of this community, who are vitally interested in the continuance of an adequate supply of natural gas for domestic and industrial purposes. It is, therefore, my opinion that the law of the State of Wyoming relating to the conservation of natural gas and prohibiting its wasteful use for carbon purposes within ten miles of an incorporated City or Town, should be enforced.

CHARLES B. MANN.

Subscribed and sworn to before me this 29th day of October, 1919.

EMIL VATERLAUS,
Notary Public.

[SEAL.]

My commission expires Jan. 30, 1923.

116 Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Co., et al., vs. William L. Walls, etc., et al. Affidavit of Charles B. Mann. Filed Nov. 8, 1919. Charles J. Olmhaus, Clerk.

117 *Affidavit of Albert Olsen.*

Albert Olsen, being first duly sworn, on his oath, deposes and says: My name is Albert Olsen. I reside in the City of Lovell and have so resided in such City for 19 years last past. I am at present the Mayor of the City of Lovell Wyoming. My business is that of retail hardware and lumber and I have been continuously engaged in such business in the town of Lovell, Wyoming, for the past 12 years. During the past three years, since the discovery of natural gas in this vicinity, the population of the City of Lovell has practically doubled; many new buildings have been constructed; a sugar factory has been constructed, and other new manufacturing industries, including a tile factory, and a glass factory are in course of construction. These industries are dependent to a large extent on the continued existence of a supply of natural gas for fuel purposes. The residences and business blocks which have been constructed in the past three years have been without exception built with the idea of the use of natural gas for fuel purposes and no provision has been made for the use of an- other form of fuel; consequently should the supply of natural gas be exhausted prematurely, the damage and loss to the people of this community would amount to many thousand dollars. The population of the City of Lovell at the present time is conservatively estimated at 1300, with the prospect of its
118 being materially increased within the next year through the establishment of the manufacturing plants above mentioned now in course of construction.

ALBERT OLSEN,
Mayor.

Subscribed and sworn to before me this 28th day of October, 1919.

THOMAS SMYLEY,
Notary Public.

[SEAL.]

My commission Expires on January 3rd, 1920.

Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In equity. Midland Carbon Co., et al. vs. William L. Walls, etc., et al. Affidavit of Albert Olsen. Filed Nov. 8, 1919. Charles J. Ohmhaus, Clerk.

119 In the District Court of the United States for the District of Wyoming.

No. 1080, Civil.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Order of Continuance.

It is ordered by the Court that this case be, and the same is hereby, continued to the November, A. D. 1919, term of this court.

JOHN A. RINER,
Judge.

Endorsements: No. 1080. Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al., Plaintiffs, vs. William L. Walls et al., Defendants. Order of Continuance. Filed Nov. 8, 1919. Charles J. Ohmhaus, Clerk.

120 In the District Court of the United States for the District of Wyoming.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Affidavit of W. Overpack.

121 W. Overpack, being duly sworn on his oath deposes and says:

My name is W. Overpack. I reside at Lovell, Wyoming. I am the Vice President and General Manager of the Big Horn Basin

Clay Products Company of Lovell, Wyoming. This company is now constructing a plant in the city of Lovell, Wyoming for the manufacture of sewer pipe, drain pipe, brick and kindred clay products. This plant consists of two four story brick buildings and one one story brick building, all of substantial construction, together with 12 brick kilns and will represent an investment, when completed of $300,000.00. There has already been expended in plant and machinery on the grounds about $200,000.00. This plant, when completed, and running to its full capacity — from 200 to 250 men continuously. The principal inducement for the location of the plant in Lovell was the large quantity of natural gas available for fuel, providing such gas supply was conserved and not allowed to be wasted in the manufacture of carbon, and when the legislature of Wyoming, in February, 1919, enacted a measure prohibiting the wasteful use of natural gas, our company felt justified in establishing a plant in Lovell, but had this legislation not been enacted, we would not have considered locating in this vicinity, in any event, as such large quantity of gas *were* being used for the manufacture of carbon that we could not be assured of a supply of gas for more than two years and from the further fact that such use of gas for carbon purposes might be increased to such an extent that we
122 could not be assured of a supply for even that length of time.

We expect to have our plant completed and in operation soon after the first of January, and when the plant is running to full capacity, we will probably use approximately 1,000,000 cubic feet of gas per day, altho of course, we will not consume that much when we first start operations. This plant when completed and running to full capacity will be able to handle approximately 250 tons of raw material per day and the market value of the product will be in excess of $1,000.00 per day.

The continuance of an adequate supply of natural gas is absolutely necessary to the success of this industry as the cost of any other available fuel in the locality would be prohibitive for the operation of a plant of this character.

WARREN OVERPACK.
W. OVERPACK.

Subscribed and sworn to before me this 28th day of October, 1919.

[SEAL.] LURENA M. STRYKER,
Notary Public.

My commission expires Jan. 20, 1923.

No. 1080 Civil. In the District Court of the United States for the District of Wyoming. Midland Carbon Company and Occidental Oil and Gas Company, Complainants, vs. William L. Walls, etc., et al., Defendants. Affidavit of W. Overpack. Filed Nov. 20, 1919. Charles J. Ohlhaus, Clerk. W. L. Walls, Attorney General, State of Wyoming, Attorney for Defendants.

123 THE STATE OF WYOMING,
County of Laramie, ss:

R. O. Neal, being duly sworn, on his oath states:

That he is a Chemical Engineer of the Bureau of Mines, United States Department of the Interior; that for many months last past he has been engaged in the study of the making of so-called carbon black and of the methods employed by the carbon black industry, and is familiar with the processes thereof; that the efficiency of this industry is very low; that the largest yield of which affiant has any knowledge is recovered by any of the manufacturers of carbon black by the burning of natural gas, is not to exceed one and one-half pounds per one thousand cubic feet of natural gas, whereas, it is a well known and chemically ascertained fact that each one thousand cubic feet of average natural gas contains approximately from thirty-three to forty-five pounds of carbon.

Affiant further states that while, so far as he is informed, the State of Wyoming is the only State at the present time that has actually passed legislative restrictions upon the use of natural gas for the manufacture of carbon black, there has recently been a great deal of agitation against the burning of natural gas for the manu-
124 facture of carbon black in the state of Louisiana, on the ground that such use of natural gas was and is a wasteful and extravagant use thereof.

Affiant further states that carbon black is made by incomplete combustion of natural gas, and that in the present method, not to exceed four per cent of the total carbon in the gas is recovered as carbon black.

Affiant further states that he has analysed the sample of natural gas submitted to him, this affiant, to-wit, C. F. Cathey, of Lovell, Wyoming, and which sample is labeled as follows, to-wit: "Easton Well No. 2, Garland Dome, Big Horn County, Wyoming, taken at Cowley, Wyoming, August 15, 1919, taken after the gas had passed through the gasoline plant of the Eastern Field Co., and before use by the Midland Carbon Co.," and with respect to same affiant states the chemical composition of said gas to be as follows:

Methane	46.45
Ethane	43.10
Carbon Dioxide	.86
Nitrogen	9.49
B. T. U. 1176 (per cubic foot at 0° C. and 760 mm. pressure).	
Lbs. carbon per thousand cubic feet of gas	44.3
(At 0° C. and 760 mm. pressure.)	

And further affiant saith not.

R. O. NEAL.

Subscribed and sworn to before me this 19th day of November, A. D. 1919.

[SEAL.] WILLIAM K. KELLY.
Clerk Supreme Court of Wyoming.

Endorsements: No. 1080 Civil. In the District Court of the United States for the District of Wyoming. Midland Carbon Company, and Occidental Oil and Gas Company, Complainants, vs. William L. Walls, etc., et al., Defendants. Affidavit of H. O. Neal. Filed Nov. 20, 1919. Charles J. Olmsted, Clerk. W. L. Walls, Attorney General, State of Wyoming, Attorney for Defendants.

125 In the District Court of the United States for the District of Wyoming.

Affidavit of John McFadyen.

John McFadyen, being first duly sworn according to law upon his oath, deposes and says:

That his name is John McFadyen; that he is a resident of Casper, Wyoming and is and has been, for the past four or five years, the General Superintendent for the Ohio Oil Company in the State of Wyoming, which Company has been, during such time and now is, engaged in the business of producing and marketing oil and gas in the State of Wyoming; that, as such General Superintendent, he is thoroughly familiar with the operations of said The Ohio Oil Company in said state.

Affiant further states upon his oath, that said The Ohio Oil Company has completed and is the owner of three gas wells located in what is commonly known as the Byron gas field, the structure of which is some times called the Garland Dome; that two of these wells have been drilled to a depth of about 1800 feet and into what is called the second gas sand of the said Garland Dome.

Affiant further states upon his oath, that said two wells at this time are producing approximately 1,000,000 cubic feet per day, which gas is being piped to the refinery of the Midwest Refining Company in the town of Greybull, Wyoming; that he is familiar with the fact that the Midland Carbon Company have been operating, at Cowley, Wyoming, a plant for the purpose of extracting carbon from natural gas the supply of which is secured by said Midland Carbon Company from the above mentioned gas field or dome; that at the time when the said Midland Carbon Company commenced operating its carbon plant at Cowley and using gas from said field or dome, the pressure at the said wells of the said The Ohio Oil Company was approximately 485 pounds; that said pressure at the said wells at this time is 187 pounds.

126-127 Affiant further states upon his oath, that he has a thorough knowledge and understanding of the operation of and the life of gas fields or gas wells and that in his opinion, at the present rate of decrease in the pressure at the said two wells of

The Ohio Oil Company, they will not be able to deliver any further gas from said two wells by next spring.

And further affiant saith not.

JNO. McFADYEN.

Subscribed and sworn to before me this 20th day of November, 1919.

[Seal J. B. Sutherland, Notary Public, Natrona County, Wyo.]

J. B. SUTHERLAND,
Notary Public.

My commission expires Feb. 17, 1923.

Endorsements: No. 1000 Civil. In the Dist. Court of the United States. In Equity. Midland Carbon Co., etc., et al., Plff., vs. W. L. Walls, etc., et al., Defts. Filed this 21st day of Nov., 1919. Charles J. Ohlhaver, Clerk.

128 *Affidavit of C. T. Causey.*

I, C. T. Causey, being duly sworn on oath deposes and says: That I am a Traveling Chemist of the Great Western Sugar Company for the Sugar Factories at Lovell, Billings and Missoula.

That on August 15th, I personally took samples of the gas from the main gas line of the Lovell Gas and Electric Company and from the main gas line supplying the Midland Carbon Company.

That these samples were taken in accordance with the method prescribed and in the containers furnished by R. O. Neal, Chemical Engineer in charge of the Petroleum Laboratory of the U. S. Bureau of Mines at Bartlesville, Oklahoma.

That these samples were taken for the purpose of getting accurate analysis of the gas used by the Great Western Sugar Factory, and particularly for the amount of heat contained in the said gas.

That these samples were properly sealed and forwarded to the said R. O. Neal, and that he has returned to my office the following analyses of the different samples:

Gas from Lovell Gas and Electric Co.		Gas from Midland Carbon Company.	
Methane	68.38%	Methane	46.42
Ethane	28.86%	Ethane	43.67
Carbondioxide	.22	Carbondioxide	.86
Oxygen	...	Oxygen	...
Nitrogen	2.54	Nitrogen	9.55
Btu. calculated air free	—1144	Btu. calculated air free	—1476

The above analyses shows that there is contained in each 1000 cu. ft. of gas of the Lovell Gas and Electric Company 41.8 pounds of available carbon, and in each 1,000 cu. ft. of gas used by the Midland Carbon Company there is 45 pounds of available carbon, the

gas being measured at atmospheric pressure and 0° Centigrade, and at 60° Fahrenheit and 3 pounds pressure per square inch above atmospheric pressure sea level. The amount of available carbon per thousand cu. ft. of gas would be increased by 7.8 per cent.

(Sgd.) C. T. CARNEY.

Sworn to and subscribed before me this 5th day of November, 1919.

My Commission expires March 1st, 1923.

(Sgd.) L. A. BOWMAN. [SEAL.]
Notary Public.

129 Endorsements: No. 1080. Civil. In the District Court of the United States for the District of Wyoming. Midland Carbon Company, and Occidental Oil and Gas Company, Complainants, William L. Walls, etc., et al., Defendants. Affidavit of C. T. Carney. Filed Nov. 29, 1919. Charles J. Graham, Clerk. W. L. Walls, Attorney General, Attorney for Defendants.

130 In the District Court of the United States for the District of Wyoming.

No. 1080. In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Order Granting Interlocutory Injunction.

This cause came on this day for hearing before the Court, Honorable Walter H. Sanborn, Circuit Judge, and Honorable John A. Riner, District Judge, and Honorable Thomas C. Munger, District Judge, sitting, the plaintiffs appearing by Herbert V. Lacey and John W. Lacey, their solicitors and of counsel, and the defendants appearing by Honorable William L. Walls, Attorney General of the State of Wyoming, and Henry C. Lutz, their solicitors and of counsel.

And the said application for interlocutory injunction is now submitted to the Court upon the Bill of Complaint, the Answer and the affidavits presented by the plaintiffs and the affidavits presented by the defendants and the arguments of counsel in relation to the said application for interlocutory injunction. And the Court being now sufficiently advised does now sustain the said application of the plaintiffs for interlocutory injunction as prayed for in the Bill of Complaint.

It is therefore considered, ordered and adjudged by the Court that

the said defendants, and each of them, be and they are hereby enjoined, during the further pendency of this cause, from in any manner enforcing or attempting to enforce the purported statute of Wyoming set forth in the Bill of Complaint in said cause, or any provisions therein.

131 This interlocutory injunction is to be effective when the plaintiffs shall give bond in the penal sum of One Thousand Dollars ($1,000.00), conditioned as required by law.

To each of which rulings the defendants and each of them, now at the time except. And on application of the defendants, the defendants are now allowed thirty days from and after the date hereof within which to determine whether or not they shall appeal from this decision.

And the Court now directs that Honorable John A. Riner, District Judge for the District of Wyoming, do put in form and sign and enter for the Court, the order of the Court herein, and do approve the bond above provided for, and do make and enter any other or further order herein deemed necessary during the further pendency of this cause and until the final hearing.

Dated this 21st day of November, A. D. 1919.

JOHN A. RINER,
Judge.

Endorsements: No. 1080. In the District Court of the United States, for the District of Wyoming. Midland Carbon Company, et al., Complainants, vs. William L. Walls, Attorney-General of the State of Wyoming, et al., Defendants. Order Granting Interlocutory Injunction. Filed November 21, 1919. Charles J. Ohnhaus, Clerk.

132 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

C. A. Baston, being duly sworn, says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: Edwin Binney, W. S. Hoskins, H. A. Hoskins, F. F. Curtze; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming, and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming, and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of

natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) C. A. BASTON.

Sworn to before me this 6th day of November, 1919.
[SEAL.] L. M. SMITH.

My commission expires Sept. 2nd, 1923.

133 Endorsements: No. 1080. Civil. In the U. S. Dist. Court, Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls et al. Affidavit of C. A. Baston. Filed Nov. 21, 1919. Charles J. Ohmhaus, Clerk.

134 *Affidavit of Edwin Binney.*

THE STATE OF WYOMING,
County of Laramie, ss:

Edwin Binney, being duly sworn on his oath according to law deposes and says: that he is a citizen and resident of Sound Beach, in the County of Fairfield, in the State of Connecticut, and is a director of Columbian Carbon Company, a corporation engaged in producing and marketing carbon black.

And affiant further says that he has for more than thirty years been in close touch with the business of manufacturing and marketing carbon black in all branches of both production and marketing. Affiant says that such production has always been from natural gas and only from that substance, excepting that affiant has been familiar with many experiments attempting to produce carbon black from other substances than natural gas. Among the experiments
135 have been experiments in such production with artificial gas.

Affiant believes that he is acquainted with every process that has anywhere been used for the production of carbon black, and that no other substance can be used so as to produce it excepting natural gas and artificial gas. That artificial gas can be so used, but it is not commercially practical. That the cost of producing carbon black from artificial gas, without counting any profit whatever to the producer, would be not less than five times the present market price of carbon black. That in addition to the prohibitive cost, production of a given quantity of carbon black would use coal and consume it and take it away from domestic and industrial uses of a value many times greater than the value of natural gas for any of said uses.

Affiant further says that he has observed very closely and personally the effect on gas fields of using natural gas for the manufacture of carbon black. That such personal knowledge has been especially

constant for thirty years in the States of West Virginia and Pennsylvania. That in places where carbon black has been manufactured constantly for the last thirty years the fields which were and are in no respects more promising than the so-called Byron Fields here in controversy, have been so used for not less than thirty years and are still producing an abundance of natural gas, not only for the manufacture of carbon black but also for general manufacturing purposes and domestic uses, including the piping of gas to towns and cities at varying distances up to seventy-five miles from the field.

Affiant further says that in the field here in controversy gas is being piped in large quantities to Greybull for use there.

From the experience and knowledge of affiant, both of the field here in controversy and of other gas fields, and the uses of
135 gas therefrom, affiant is of opinion that the natural gas in the field in controversy will be abundant for all uses now being made, and all in contemplation, so far as affiant has knowledge, for not less than twenty-five years.

Affiant further says that it is always true that the initial pressure of a gas well and of a gas field is much greater than the pressure after the field has been drawn from for a time, but that such reduction of pressure does not at all indicate the exhaustion of the field. That within affiant's knowledge the pressure of wells has been so reduced within a year or two to one-half the initial pressure and yet the wells continued to go on producing gas in paying quantities from twenty to thirty years.

Affiant further says that he has knowledge that the production of carbon black from the factory of the Wyoming Gas Products Company at Lovell was unprofitable. The said Company owned no gas in that field, and was compelled to buy as it used the gas, and used twice the amount per pound that is required by the plaintiffs in this case, and twice the amount that should be required in a plant capable of reasonably economic use.

Affiant further says that the persons who have purchased and moved the said carbon black factory of the Wyoming Gas Products Company owned gas and gas lands in the field to which the said factory is being removed.

Affiant further says that in all cases where carbon black has been produced, whenever the gas became more valuable in the
137 market for any other use which was capable of consuming the gas, the use thereof for the manufacture of carbon black automatically ceased.

And further affiant saith not.

EDWIN BINNEY.

Subscribed in my presence and sworn to before me this 8th day of November, A. D. 1919.

[SEAL.] JENNIE M. TUPPER,
Notary Public.

Endorsements: No. 1080 Civil. In the District Court of the United States, District of Wyoming. Midland Carbon Company, et al., Complainants, vs. William L. Walls, Attorney-General, et al.,

Defendants. Affidavit of Edwin Binney. Filed Nov. 21, 1919. Charles J. Ohmhaus, Clerk. Lacey & Lacey, Cheyenne, Wyo. For Complainants.

138 STATE OF NEW YORK,
County of New York, ss:

Reid L. Carr, being duly sworn, deposes and says: I reside in the City and State of New York. I am secretary of both the complainants herein.

I have read the answer of the defendants and note the statement contained in paragraph 4 thereof that

"during the active pendency of the late war, the United States Fuel Administration classified the burning and use of natural gas for the manufacture of carbon black as a wasteful use of natural resources."

No order or regulation was ever made by said Fuel Administration prohibiting or restricting the use of natural gas for this purpose, either as regards the complainants herein or any other manufacturer to the best of my knowledge, information and belief.

On behalf of the principal manufacturers of carbon black in West Virginia, I furnished to said Fuel Administration in 1918 at its request, data concerning location of plants, quantities of gas used, and pressures.

139 Such information was, as I understood, required of all manufactures in order that the use of natural gas in a time of national emergency might be ascertained and dealt with as the exigency might require.

I also presented to said Fuel Administration a memorandum demonstrating the essential importance of carbon black as a war material, specifically enumerating the many war purposes for which it was required, and mentioning numerous Government contracts for which it was supplied. These contracts were made with the Ordnance, Signal Corps, Engineering, Quartermaster, Navy, Motors, Aircraft, Post Office, and other Governmental departments and bureaus.

In connection therewith, I presented a letter of the Goodyear Tire & Rubber Company, dated May 4th, 1918 stating:

"We are using carbon black in truck tires, gas masks, aeroplane tires and pneumatic tires manufactured for the Government. The proportion of the total quantity of material you ship us which is used in Government work is 66-1/2%. * * *

You can see from this what a very important item it is in the manufacture of our Government material."

Also a letter from the Fisk Rubber Company, dated June 24, 1918, stating:

"In the manufacture of our solid tires for Field Artillery and Army trucks, we are depending on your company for supply of compressed gas black."

I also presented a resolution of the National Association of Printing Ink Makers, reading as follows:

"Be it Resolved, that the National Association of Printing Ink Makers regards with utmost apprehension and concern the cessation or curtailment of the supply of carbon black, and respectfully represents to the Fuel Administration that if the supply of this most important material is cut off it will be impossible to continue the supply of ink requisite for the printing of news papers, and necessary for the manifold printing activities of the various departments of the Federal Government."

140 Presumably in recognition of the fact that carbon black was essential, not only to the printing of newspapers, and to the activities of the Government printing office, but also to the direct manufacture of military supplies, the Fuel Administrator wisely refrained from interfering with the use of natural gas for such manufacture throughout the war.

The carbon black factories were also given permission by the Fuel Administrator to operate during the "fuel-less" Mondays when all but the most essential industries were closed.

In 1918 it became necessary to apply to the War Industries Board for certificates of priority on structural steel and iron required to build and complete certain carbon black factories. This application was made by me and was based upon "the importance of this material to manufacturers supplying the United States with war essentials." The application was granted and certificates of priority were promptly issued.

On or about January 1st, 1919, after the war was over, a statement did appear in the press, emanating from the Fuel Administration recommending the removal of carbon black factories as far as possible from West Virginia to regions where the demand for gas by other users was not so great. In explanation thereof, Dr. Garfield, the Fuel Administrator, wrote me under date of January 14th, 1919, a letter in which he stated:

"In some localities of the United States the present demand for gas is greater than the supply. To provide enough of this gas for domestic use and for necessary industrial purposes, demands a curtailment where curtailment will produce the least harm and
141 secure the greatest saving of gas."

In this connection it may be timely to note that the latest publication of the United States Geological Survey just issued (Natural Gas in 1917) states:

"the available supply of natural gas in Wyoming, is far in excess of existing markets within feasible piping distance of the sources of supply."

The attitude of another department of the Government, the Bureau of Mines, regarding the manufacture of carbon black is exemplified by its announcement which appeared in the public press in April 1919. After stating that the Bureau has undertaken a complete study of the carbon black industry, the announcement proceeds:

"The literature of the country gives only the most meager description covering this industry and for this reason the Bureau is undertaking this investigation to put into the hands of those interested, all of the available information obtainable including the latest and most profitable methods of manufacturing, plant construction and operation. The work will include cost details, the value of the various products, and the features necessary such as water supply and railroad transportation essential to carbon black manufacture. It has been learned that at the present time plants cost from two to three thousand dollars per barrel of product, one barrel being fifty pounds of carbon, and that the production is between one and two pounds per thousand feet of gas burned.

It is the intention of the Bureau to complete this study and get the information before the public at the earliest possible date in order that those interested may be able to obtain the information desired and complete their plans regarding this method of the use of natural gas."

It is inconceivable that the Bureau of Mines of the United States would thus deliberately undertake to familiarize gas producers with "this method of the use of natural Gas," if it deemed such use to be a mere waste of the mineral resources of our country or inimical to the public good.

142

REID L. CARR.

Subscribed and sworn to before me this 5th day of November, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, No. 183 New York County,
Register's No. 10108.

Commission expires March 30, 1920.

Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of Reid L. Carr. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

143

Affidavit.

STATE OF WYOMING,
County of Big Horn, ss:

Victor Cotner, being duly sworn says that he is a resident of Lovell, Wyoming, and that he is engaged in the practice of Civil Engineering and that he is familiar with the so called Byron Oil and Gas field, which consists of the Garland Dome and the Byron Appex Dome. That said structures are located in the North Central part of the County of Big Horn, State of Wyoming, and extends over the Park County line in the northern end of the Big Horn Basin. That the Midland Carbon Company gets gas for the operation of their carbon plant at Cowley, through a pipe line from the Byron fields to their plant at Cowley.

That the Garland Dome from which this gas is piped to the Midland Carbon Company Plant at Cowley is a large structure is evident

from the fact that the Government withdrawal confirmed on July 2nd, 1910 and designated as Petroleum Reserve N. 8 embraced over 2,000 acres in Twp. 55 N. R. 97 W.; 520 acres in T. 57 N. R. 98 W.; 5720 acres in Twp. 56 N. R. 98 W., and 6440 acres in Twp. 56 N. R. 97 West which withdrawals covers land embraced by the structures of the Garland Dome and Byron Dome.

The Garland Dome has a large collective area which extends on the West and South for a distance of twelve (12) miles before any reverse dips appear.

So far all of the wells that have been drilled near the center of the fold, and which have penetrated the Morrison sand have produced large quantities of gas. In this deep horizon the gas is held under tremendous pressure so that the capacity of at least two wells was estimated at One Hundred Million cubic feet of gas per day. As a matter of fact when these wells were brought in, the gas blew off with such force as to destroy the upper part of the well rigs and had an initial pressure of Five Hundred Pounds which caused great difficulty in capping these wells.

The wells of the Occidental Oil and Gas Company which have been supplying the Carbon Plant and Cowley and the Wells of the Lovell Gas and Electric Company that have been supplying the Town of Lovell have decreased in pressure since being drawn on for a considerable time, however, its general effect on the field has been of no marked importance as there has been two new wells drilled in the field this last summer, one by the Carter Oil Company and one by the Allen Oil Company, and both of these wells come in with an initial pressure of at least 150 pounds more than the initial pressure of the first wells drilled in the field.

Quoting from Victor Ziegler's report, State of Wyoming, Geologist's Office, Bulletin No. 14 and speaking of the Morrison Formation where the heavy gas flow is encountered, "1st. All the wells sent down to this horizon have carried gas under great pressure. 2nd. All the wells penetrating to this horizon are located near the apex of the fold. 3rd. The gas in every case has carried gasoline. 4th. The Garland Dome because of its decided dips and size furnishes an ideal reservoir of large capacity."

Considering the high pressure of the new wells, and that the Pole Cat field which is located along the anticline of the Byron field extending North West has been drilled and found to contain gas, that there is a decidedly large collective area feeding the Garland Dome, and that a large portion of the dome has not yet been drilled, the Garland Dome appears to contain an exceptionally tremendous volume of gas.

VICTOR COTNER.

Sworn to and subscribed to before me this 6th day of November, 1919.

THOMAS SMYLEY,
Notary Public.

[SEAL.]

My commission expires Jan. 3rd, 1920.

144 Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al. vs William L. Walls et al. Affidavit of Victor Cotner. Filed Nov. 24, 1919. Charles J. Ohnhaus, Clerk.

145 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

Victor Cotner being duly sworn says that he is a resident of Lovell, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely:—Edwin Binney, W. S. Hoskins and Homer A. Hoskins; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained from the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) VICTOR COTNER.

Sworn to before me this 5th day of November, 1919.

[SEAL.] THOMAS SMYLEY.

My commission expires Jan. 3rd, 1920.

146 Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al., vs. William L. Walls et al. Affidavit of Victor Cotner. Filed Nov. 24, 1919. Charles J. Ohnhaus, Clerk.

147 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

E. W. Croft being duly sworn says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely — W. S. Hoskins, Homer A. Hoskins, Frank T. Ives; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production may be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same mount of natural gas if sold for fuel purposes, or they would sell it for fuel purposes and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) E. W. CROFT.

Sworn to before me this 6th day of November, 1919.
[SEAL.] EMIL VATERLAUS.

My commission expires Jan 30, 1923.

148 Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al. vs William L. Walls et al. Affidavit of E. W. Croft. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

149 *Affidavit of Maurice Hopkins.*

THE STATE OF WYOMING,
County of Laramie, ss:

Maurice Hopkins being duly sworn on his oath according to law, deposes and says: that his residence is at Casper, Wyoming; that he is a graduate in engineering and science of the University of Liege, Belgium, in said University having paid special attention to the sub-

ject of geology; that he is a member of the Institute of Mining Engineers of the United States and of the Royal Geological Society of Belgium; that he has had experience in geological work in all parts of the world, and for the past eighteen years—having been
150 interrupted, of course, during the war by his service in the war—he has had more or less experience in connection with oil and gas geological questions and oil and natural gas production.

Affiant further says that it is not true that a decrease in pressure in a well, even amounting to dividing the pressure by two in the first two years of active use of such well, indicates that the well will be exhausted within another two years if such use is continued. And further affiant says that such a reduction in a single well does not indicate that the pressure in the field, covering several square miles or any large area, would be equally reduced, nor does it indicate that the life of the field would be limited to an additional two years of similar use.

That affiant has studied carefully, and on three different occasions, the field here in controversy, and knows it to be a field large in area, with two gas sands, one of which is of very considerable thickness, and that under these conditions the field is capable of producing large quantities of natural gas for a number of years.

And further affiant saith not.

MAURICE HOPKINS.

Subscribed in my presence and sworn to before me this 8th day of November, A. D. 1919.

JENNIE M. TUPPER,
[SEAL.] *Notary Public.*

151 Endorsements: No. 1080 Civil. In the District Court of the United States, District of Wyoming. Midland Carbon Company, et al., Complainants, vs. William L. Walls, Attorney-General, et al., Defendants. Affidavit of Maurice Hopkins. Filed Nov. 21, 1919. Charles J. Ohlhaus, Clerk. Lacey & Lacey, Cheyenne, Wyo. For Complainants.

152 *Affidavit of W. S. Hoskins.*

THE STATE OF WYOMING,
County of Laramie, ss:

W. S. Hoskins being duly sworn on his oath according to law, deposes and says: that he is the General Manager of the operations of Midland Carbon Company in the production of carbon black in the vicinity of Conley, Wyoming.

Affiant further says that he has been engaged in the business of manufacturing carbon black for more than thirty years, and is familiar with that work, having been engaged in all branches of it in West Virginia, Pennsylvania, Louisiana, Oklahoma and Wyoming during the time above stated. That he is also familiar with the gas field here in controversy, having been all over it and having

studied it in the light of his experience and general knowl-
153 edge of gas fields, which has been intimate during all of the time above stated.

And affiant says that it is not true that the gas pressure on the wells of the plaintiffs have been reduced from five hundred pounds per square inch to two hundred pounds within the time of the operations of the plaintiffs in that field; but on the contrary affiant says that the initial pressure on the wells of the plaintiffs at the time when the plaintiffs began operations there did not exceed four hundred and eighty pounds, and that the pressure at the present time on the pipes into which the gas is turned from the plaintiffs' wells is two hundred pounds per square inch, indicating a pressure of about two hundred and fifty pounds per square inch in the wells themselves if taken at rock pressure. And affiant further says that he has tested within the last three months the rock pressure at the Carter Oil Company's well, which is drilled in the same field at a distance of about one mile from the well of the plaintiffs in the same sand and in the same field, and found the rock pressure in said Carter Oil Company's well to be six hundred and forty pounds per square inch, indicating that the pressure in the field has not been at all reduced. Likewise the Allen Oil Company has drilled a gas well during the last summer about a quarter of a mile from the Carter Oil Company well, and the pressure in the Allen well is likewise about six hundred and forty pounds per square inch.

Affiant further says that it is always true that the initial pressure in a gas well is very much higher than the sustained pressure later, that the pressure will reduce rapidly within the first one or two years, frequently to less than half the initial pressure, of which this
154 affiant has known many instances, but that such reduction of pressure does not in any way indicate an approaching exhaustion of the field; that affiant knows many such wells where the initial pressure has been so reduced within the first one or two years which have continued to produce abundance of gas at ample pressure for thirty years, and are still producing.

Affiant further says that there are gas wells in the field here in controversy which are used to supply a pipe line carrying gas to Greyhall for industries and domestic use, to an amount which, according to the best information of this affiant, is not less than four million cubic feet of gas per day, the said line to Greyhall being about thirty-six miles in length and the same having been in operation for about one year, and that one of the wells so furnishing gas to Greyhall is between the well of the plaintiffs and the well mentioned in the affidavits of Byron Sessions and E. D. Sessions, and that in addition to furnishing gas for Greyhall the said well, located as above mentioned near the well of Mr. Sessions, was in such condition that it leaked gas into the open air for many months, to the amount of several million cubic feet per day.

And affiant further says that he had charge of the construction of the plant of plaintiffs mentioned in the Bill of Complaint in this cause, directing all branches of such construction and everything pertaining to it, and has for more than thirty years been familiar

with such construction and knows the cost of construction
155 such as that here involved. And affiant further has had occasion in several cases to move a plant manufacturing carbon black from one location to another location, and knows the cost of such removal. Affiant knows exactly how the present plant here in controversy is built, and knows that to remove it to another place would cost the plaintiffs not less than fifty per cent of the original cost, and after such removal the plant would not be in a condition more than ninety per cent as efficient as the present plant even with the utmost care that could be taken in such removal and re-construction.

And affiant says that he knows of the other plant manufacturing carbon black, mentioned in some of the affidavits for the defendants. He knows that the said plant was much smaller and much less efficient than the plant of the plaintiffs, and that as constructed and operated it was unprofitable. He further knows that the owners of the said other plant did not own any gas lands or gas wells, but were compelled to purchase the gas which they used, and that the removal of the said plant was to a field near Thermopolis, and was brought about because the plant as operated was unprofitable, and was therefore sold by its owners to those who owned gas lands and gas wells in the vicinity of Thermopolis, the new owners taking it over for the purpose of using it as a part of a much larger plant which they are constructing in connection with their own gas lands.

And affiant further says that the amount of natural gas used in the plant of the plaintiffs per day does not exceed seven
156 million cubic feet, and that from the said natural gas there are produced from twenty-four hundred to twenty-six hundred gallons per day of gasoline, of the very best quality, used principally in aeroplane engines and for improving other gasoline, and in addition there are made each day about fifteen thousand pounds of carbon black, the said gasoline selling at from twenty to twenty-five cents per gallon wholesale and the said carbon black selling at from nine to ten cents per pound wholesale. Affiant further says that the said natural gas is not worth for any other industrial use in that vicinity more than seventy per cent of its value for use as it is being used by the plaintiffs.

And affiant further says that he has knowledge of the gas fields and of the uses of natural gas for the manufacture of carbon black and its uses for domestic and industrial purposes generally, and he knows that in all cases where at any place the natural gas becomes more valuable for other uses than for the manufacture of carbon black it is allowed by the manufacturers of carbon black to go to the more valuable uses.

As to the well mentioned in the affidavit of G. E. Morgan, with a statement that he (Morgan) was informed that the reason for not using gas from that well was that it was coming into water, affiant says that the information so received by Mr. Morgan is en-

tirely incorrect. The facts in relation to the said well are
157 that the same is on government land and there has been a question as to the right to its use. Therefore it never was really drilled into the gas sand and never connected with the plaintiffs' pipe line, though a pipe line was laid almost to a connection. Said well was never shut off because of coming into water, and so far as affiant knows it never came into water, but it was merely not connected until the question of the right to its use could be determined.

Affiant further says as to affidavits of leakage in the field and concerning the shallow sands receiving gas from such leakage, that the chief leakage in that field has been the leakage which affiant described as coming from the Lovell Gas & Electric Company, of which Mr. R. E. Richardson, who makes an affidavit for the defendants in this case, is the General Manager, and which well furnishes gas for the town of Greyhall and for the town of Lovell.

Affiant further says that the sharp reduction in the pressure in the Lovell Gas & Electric Company's well, as shown in the affidavit of its General Manager, Mr. Richardson, to have begun in 1918, began prior to any considerable use of gas from the field by the plaintiffs in this case. There was, however, about the time of the beginning of such sharp reduction in pressure, a greatly increased use from that well by the Lovell Gas & Electric Company for the towns of Lovell and Greyhall, amounting to several million cubic feet per day. Besides, in 1918 another gas well, owned by others than the plaintiffs, was allowed to flow in full volume in that field without any obstruction, such flowage being into the open air. This increased use by the Lovell Gas & Electric Company and by the flowage into the open air, as just indicated, naturally resulted
158 in a sharp decrease in the pressure in that well, but with no further indication of exhaustion than is suggested in the previous part of this affidavit.

And affiant further says that the pressure of six hundred and forty pounds per square inch at the Carter well and at the Allen well drilled during the last season, as above stated, indicates a capacity of fifty million cubic feet per twenty-four hours, or above, and that the fact that such pressure is found there shows that the field has not been reduced in pressure outside the small area drained by the particular wells that have been flowing for the last three years.

Affiant further says that in his knowledge of gas fields for the last thirty years, he has known gas wells to be used for from twenty to thirty years in the production of carbon black without exhausting the fields.

Affiant further says that in no industrial use of natural gas as fuel is more than fifty per cent of the heat contained therein in any manner utilized, the unutilized heat escaping in the same manner as unutilized heat escapes from the carbon black factory, and further, that to utilize all of the heat contained in natural gas would necessarily consume all the carbon contained in the gas and thereby make it impossible to manufacture the carbon black.

Affiant further says that if natural gas is used in generating steam

for industrial purposes, not more than twenty-five per cent of the heat contained in the gas is utilized, even with the very best appliances.

Affiant further says that the pressure at which natural gas
159 is used by domestic consumers is less than one pound per square inch, and in no industrial use is the gas used at a greater pressure than five pounds per square inch, and that the high rock pressure in the gas field is not in any wise requisite in utilizing the gas for any purpose.

Affiant further says that all of the industries in operation, or in course of construction, or proposed to be constructed, at any of the places mentioned in any of the affidavits in this cause, excepting the manufacture of carbon black, can well use coal for every purpose for which they are now using or intending to use natural gas. That glass factories and tile, brick and other clay product factories, taking the country over, generally use coal instead of natural gas, and use it profitably. Affiant further says that there are coal mines in operation northword from the region here in controversy and on a line of railroad passing through Lovell and Cowley, and the region in controversy, less than sixty miles from Lovell and Cowley, and to the southward there are other coal mines in operation, producing coal, on the same line of railroad, at a distance of less than one hundred miles from Lovell and Cowley; that all of the said mines produce good coal, which is sold at Lovell and Cowley at reasonable prices.

And affiant further says that the total consumption of natural gas by the carbon black factories of the plaintiffs does not exceed seven million cubic feet per day, and that from that use the plaintiffs manufacture twenty-four gallons of high grade gasoline and fifteen
160 thousand pounds of carbon black, having a value of twenty-one to twenty-two cents for every one thousand cubic feet of natural gas used.

And affiant further says that it would be impossible to convey heat from the said factory to any town without the loss in radiation en route consuming more than half of the heat, and the expense of providing for and carrying out such transportation of heat would be such that even at cost the users of the heat could not be supplied at a less rate than many times the cost of equal heat furnished by coal used at the place to be heated.

And affiant further says that the buildings and equipment of plaintiffs could not be used for any other purpose of which affiant has any knowledge.

And affiant further says that in fact the manufacture of carbon black is the manufacture of a product which is not an ultimate product, and which does not cease in giving employment when the carbon black is manufactured, but that it gives employment to large numbers of people in manufacturing printing inks, in printing books and papers, and in manufacturing the various articles for whose manufacture it is a necessity, thus, in fact, as affiant believes, employing far more persons through the use of a given amount of natural gas than are employed through the use of the same amount of

natural gas in making glass, or bottles, or tiles, or brick, or clay products, or any other of the purposes for which the natural gas in question is desired or proposed to be used.

161 And further affiant saith not.

W. S. HOSKINS.

Subscribed in my presence and sworn to before me this 20th day of November, A. D. 1919.

JENNIE M. TUPPER,
Notary Public.

[SEAL.]

Endorsements: No. 1080 Civil. In the District Court of the United States, District of Wyoming. Midland Carbon Company, et al., Complainants, vs. William L. Walls, Attorney-General, et al., Defendants. Affidavit of W. S. Hoskins. Filed Nov. 21, 1919. Charles J. Ohmhaus, Clerk. Lacey & Lacey, Cheyenne, Wyo. For Complainants.

162 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

J. Edd Johnson, being duly sworn, says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely:—Homer A. Hoskins, W. S. Hoskins, Frank T. Ives; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming, and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming, and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) J. EDD JOHNSON.

Sworn to before me this 6th day of November, 1919.

[SEAL.] L. M. SMITH.

My commission expires September 2nd, 1923.

163 Endorsements: No. 1080 Civil. In the U. S. Dist. Court, Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of J. Edd. Johnson. Filed Nov. 21, 1919. Charles J. Ohmhaus, Clerk.

164 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

David Lewis, being duly sworn, says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: W. S. Hoskins, Frank T. Ives, Homer A. Hoskins; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming, and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming, and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he believes the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) DAVID LEWIS.

Sworn to before me this 6th day of November, 1919.
[SEAL.] EMIL VATERLAUS.

My commission expires Jan. 30, 1923.

165 Endorsements: No. 10080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of David Lewis. Filed Nov 21, 1919. Charles J. Ohmhaus, Clerk.

166 STATE OF NEW YORK,
County of New York, ss:

George C. Lewis, being duly sworn, deposes and says:
I reside in the City and State of New York. I am secretary of

The L. Martin Company of Philadelphia, Pa., and have active charge of the conduct of its manufacturing business.

I am thoroughly familiar with the product known as carbon black, made from natural gas, and with the product known as lamp black, made from creosote oil, and with the processes used in the manufacture of said products.

The manufacture of carbon black from artificial gas or illuminating gas, would be impossible as a commercial operation, for the reason, first, that the yield per thousand cubic feet would be so small, second, that the operation would require so great an investment in the plants required to generate so enormous quantities of gas, and third, that the cost of the resulting product would be prohibitive.

I have personally investigated this whole subject. About the year 1912, a series of experiments were conducted by me and under
167 my personal supervision with a view to determining whether under any circumstances such manufacture would be practicable.

In these experiments the artificial illuminating gas supplied to residents of the cities of Philadelphia and New York was used.

Said experiments demonstrated that the yield of carbon black per thousand cubic feet was only about one-fifth of that obtained from natural gas. In other words, a factory consuming five million cubic feet of natural gas per day would consume over twenty-five million cubic feet of such artificial gas to obtain the same daily production.

Of course no gasoline would be recoverable from artificial illuminating gas so used.

As such artificial gas costs in the neighborhood of eighty cents per thousand cubic feet, it would in my opinion be impossible to produce black from it at a cost of less than two dollars per pound.

The yield of carbon black from natural gas is largely dependent on its methane content. Ordinary dry natural gas, such as that at Cowley, Wyoming, has a methane content of from seventy-five to eighty-five per cent. Artificial gases have a very much lower content of methane, as is illustrated by the following percentages from Westcott's "Handbook of Natural Gas":

168

	Hydrogen.	Methane.	Nitrogen.	Carbon monoxide.	Carbon dioxide.
Water gas	48%	2%	5.5%	38%	6%
Producer gas from hard coal	20	0	49.5	25	5
Producer gas from soft coal	10	3	58	23	5
Producer gas from coke	10	0	56	29	4.5
Blast furnace gas..	1	0	60	27.5	11.5

To show how different such gases are in their chemical properties from the natural gas used by the complainants, I refer to the analysis

of the gas from the principal well supplying complainants' factory, which analysis as made by Col. George A. Borrell, the well-known consulting chemist and gas expert, is as follows:

Oxygen.	Methane.	Ethane.	Nitrogen.	Carbon dioxide.
.2%	78.4%	18.9%	2.2%	.3%

The manufacture of black from any artificial gas has never to my knowledge been commercially undertaken in the United States, but has several times been attempted in Europe and in every instance has been soon abandoned as impracticable.

In respect of defendants' allegation that there are upwards of thirty-three pounds of carbon in natural gas, but only one and three-quarters pounds are recovered, I would state that this allegation fails to recognize the difference between the element—carbon, and the commercial product,—carbon black.

Carbon exists in nature in many and diverse forms, such as in the diamond, coal, graphite, the numerous hydro-carbons, the breath exhaled, and in every form of organic matter.

169 Carbon black is carbon in a unique form, adapted to certain well defined uses in the arts and industries, requiring a black of intense brilliancy, and depth of color, extreme fineness and softness, ready miscibility with liquids, and complete freedom from hard particles.

Such a black can be made only by combustion and the impinging of the flame on a metallic surface.

In the process of combustion a large part of the element carbon is necessarily consumed, or converted into carbon monoxide, just as in the ordinary burning of any fuel.

To increase the yield of carbon remaining unconverted would be futile unless the qualities of the resulting product were unimpaired.

GEORGE C. LEWIS.

Subscribed and sworn to before me this 5th day of November, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, No. 186, New York County.
Register's No. 10,108.

Commission expires March 30, 1920.

Endorsements: No. 1080 Civil. In the U. S. District Court for the Dist. of Wyoming. Midland Carbon Co. et al. vs. William L. Walls et al. Affidavit of George C. Lewis. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

170 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

H. B. Richardson being duly sworn says that he is a resident of ——, Wyoming, that he is acquainted with several officers of the

Midland Carbon Company and the Occidental Oil & Gas Company, namely: Edwin Binney, W. S. Hoskins, Homer A. Hoskins; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) H. B. RICHARDSON.

Sworn to before me this 5th day of November 1919.
[SEAL.] THOMAS SMYLEY.

My commission expires Jan. 3rd, 1920.

171 Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al., vs. William L. Walls et al. Affidavit of H. B. Richardson. Filed Nov. 21, 1919. Charles J. Ohmhaus, Clerk.

172 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

Grant Taggart being duly sworn says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: W. S. Hoskins, Homer A. Hoskins, Frank T. Ives, that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the

Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) GRANT TAGGART.

Sworn to before me this 6th day of November, 1917.

[SEAL.] EMIL VATERLAUS.

My commission expires Jan. 30, 1923.

173 Endorsements: No. 1089. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of Taggart. Filed Nov. 21, 1919. Charles J. Ohmhaus, Clerk.

174 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

T. B. Torjuson being duly sworn says that he is a resident of Lovell, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: W. S. Hoskins, Homer A. Hoskins, that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company, at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) T. B. TORJUSON.

Sworn to before me this 5th day of November 1919.
[SEAL.] THOMAS SMYLEY.

My commission expires Jan. 3rd, 1920.

175 Endorsements: No. 1080. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of T. B. Torjuson. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

176 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

Emil Vaterlaus being duly sworn says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely W. S. Hoskins, Frank Ives, Homer A. Hoskins; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) EMIL VATERLAUS.

Sworn to before me this 6th day of November 1919.

[SEAL.] L. M. SMITH.

My commission expires September 2nd, 1923.

177 Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of Emil Vaterlaus. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

178 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

C. Golden Welch being duly sworn says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: W. S. Hoskins, Frank T. Ives, Homer A. Hoskins; that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said Carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes, and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) C. GOLDEN WELCH.

Sworn to before me this 6th day of November 1919.

[SEAL.] EMIL VATERLAUS.

My commission expires Jan. 30, 1923.

179 Endorsements: No. 1080. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al. vs. William L. Walls et al. Affidavit of C. Golden Welch. Filed Nov. 21, 1919. Charles J. Ohnhaus, clerk.

180 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

We, the undersigned, being duly sworn depose and say that we are bona fide residents of the town of Cowley, County of Big Horn, State of Wyoming, that we are acquainted with Messrs. W. S. Hoskins and Homer A. Hoskins, officers of the Midland Carbon Company and the Occidental Oil & Gas Company and that we know them to be honest and truthful men and good citizens, that we know

the Midland Carbon Company has been running at full capacity but little over one year and that we know the enforcement of the so-called carbon black law will be very damaging to the Midland Carbon Company, that we know that a Gasoline Plant treats all the gas supplied to said Carbon Company and secures therefrom a considerable amount of high grade gasoline and that we know that, if the law is enforced and the Carbon Plant shut down, the total domestic consumption of natural gas would not warrant maintaining the above mentioned gasoline plant and that enforcement of the law above mentioned would cause the removal of both the Carbon Plant and the Gasoline Plant from our vicinity, a removal of our only large industries, that we know these industries have been the chief factors, since their coming, in building up our town, that they were first to supply our town with natural gas fuel and that we know they provide steady employment for a great many men at better than living wages, that they have been of assistance in maintaining a road which is vital to our town, and that, individually and collectively, we desire that the Occidental Oil & Gas Company and the Midland Carbon Company be permitted to continue to operate. There is now operating in conjunction with them a dehydration plant and as the system now stands we do not consider their business an economic waste.

WEBER A. LUND.
C. GOLDEN WELCH.
D. C. SAFFORD.
E. D. GODFREY.
S. A. WARDELL.
C. E. NELSON.
JOHN J. WELCH.
HY. PETERSON.
FLOYD TAGGART.
O. P. FROST.
C. P. JOHNSON.
ED. DUNCAN.
JOSHUA CROSBY.
RICHARD BEYL.
L. J. HARVEY.
RAY DELANEY.
LEO T. LYTHGOE.
MARTELL EYRE.
G. T. MARCHANT.
EMANUEL CHRISTENSEN.
CECIL D. SOFFORD.
ELIJAH DICKSON.
GEORGE DAVISON.
FRANK DALTON.
W. H. SIMMONS.
CLARENCE W. ANDERSON.
JOSEPH W. SHULL.
FLORENCE HOLYOAK.
J. R. RAPPLEYE.

H. G. SAFFORD.
DAVIS MARTIN.
BRUCE T. GANT.
PARNELL BLACK.
W. J. GODFREY.
JAMES S. TEBBS.
J. EDD JOHNSON.
SAMUEL R. WILCOCK.
CHASEE TAGGART.
G. S. MARCHANT.
CHAS. W. MARCHANT.
SETH BALLARD.
L. B. EGAN.
W. C. WELCH.
J. B. GEORGE.
SAMUEL WELCH.
H. R. TUCKER.
R. A. RAFFLEYE.
RAY IRBY.

Sworn to and subscribed before me this 7th day of November 1919.
[SEAL.] L. M. SMITH.

My commission expires Sept. 2nd, 1923.

181 Endorsements: No. 1080. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co. et al., Complainants, vs. William L. Walls et al., Defendants. Affidavit of Weber Lund et al. Filed Nov. 21, 1919. Charles J. Graham, clerk.

182 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

F. Joaquin Wright, being duly sworn says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: W. S. Hoskins, Homer A. Hoskins, that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the opera-

tion of the said Gasoline plant in case the said Carbon Plant sh
cease to run, that he knows the price of one thousand cubic fe
natural gas, when converted into gasoline and carbon black and
at the average market rates for these commodities, is much hi
than could be obtained for the same amount of natural gas if
for fuel purposes, and that he knows the industries above cited
vide steady employment for a great many men at better than li
wages.

(Signed) F. JOAQUIN WRIGHT

Sworn to before me this 6th day of November, 1919.
[SEAL.] EMIL VATERLAU

My commission expires Jan. 30, 1923.

183 Endorsements: No. 1050, Civil. In the U. S. Dist. C
for the Dist. of Wyoming. Midland Carbon Co., et al.
William L. Walls, et al. Affidavit of F. Joaquin Wright.
Nov. 21, 1919. Charles J. Glasmann, Clerk.

184 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

John J. Welch, being duly sworn says that he is a resident
Cowley, Wyoming, that he is acquainted with several officers o
Midland Carbon Company and the Occidental Oil & Gas Comp
namely: W. S. Hoskins, Frank T. Ives, Homer A. Hoskins, th
knows them to be honest and truthful men and good citizens, th
is acquainted with the plant of the Midland Carbon Compan
Cowley, Wyoming and that he considers the product made in
plant by said Company a very necessary article and an article w
is so useful that a curtailment of its production would be dama
to the best interests of all the people, that he is acquainted wit
Gasoline Plant operated in conjunction with the Midland C
Company's plant near Cowley, Wyoming and that he know
quality of gasoline extracted from the gas which the Occidenta
& Gas Company supplies to the Midland Carbon Company is o
very best and that a very considerable amount is produced eve
hours, that he knows that local consumption of natural gas i
large enough nor cannot be made large enough to warrant the c
tion of the said Gasoline plant in case the said Carbon Plant sh
cease to run, that he knows the price of one thousand cubic fe
natural gas, when converted into gasoline and carbon black an
at the average market rates for these commodities, is much h
than could be obtained for the same amount of natural gas if
for fuel purposes, and that he knows the industries above cited
vide steady employment for a great many men at better than l
wages.

(Signed) JOHN J. WELC

Sworn to before me this 6th day of November, 1919.
[SEAL.] EMIL VATERLAUS.

My commission expires Jan. 30, 1923.

185 Endorsements: No. 1080, Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of John J. Welch. Filed Nov. 21, 1919. Charles J. Oldham, Clerk.

186 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

E. Marion Willis, being duly sworn says that he is a resident of Cowley, Wyoming, that he is acquainted with several officers of the Midland Carbon Company and the Occidental Oil & Gas Company, namely: Edwin Binney, W. S. Hoskins, Homer Hoskins, that he knows them to be honest and truthful men and good citizens, that he is acquainted with the plant of the Midland Carbon Company at Cowley, Wyoming and that he considers the product made in that plant by said Company a very necessary article and an article which is so useful that a curtailment of its production would be damaging to the best interests of all the people, that he is acquainted with the Gasoline Plant operated in conjunction with the Midland Carbon Company's plant near Cowley, Wyoming and that he knows the quality of gasoline extracted from the gas which the Occidental Oil & Gas Company supplies to the Midland Carbon Company is of the very best and that a very considerable amount is produced every 24 hours, that he knows that local consumption of natural gas is not large enough nor cannot be made large enough to warrant the operation of the said Gasoline plant in case the said carbon Plant should cease to run, that he knows the price of one thousand cubic feet of natural gas, when converted into gasoline and carbon black and sold at the average market rates for these commodities, is much higher than could be obtained for the same amount of natural gas if sold for fuel purposes and that he knows the industries above cited provide steady employment for a great many men at better than living wages.

(Signed) E. MARION WILLIS.

Sworn to before me this 6th day of November, 1919.
[SEAL.] L. M. SMITH.

My commission expires Sept. 2nd, 1923.

187 Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of E. Marion Willis. Filed Nov. 21, 1919. Charles J. Oldham, Clerk.

188 *Affidavit.*

STATE OF WYOMING,
County of Big Horn, ss:

We, the undersigned, being duly sworn depose and say that we are bona fide residents of the town of Cowley, County of Big Horn, State of Wyoming, that we are acquainted with Messrs. W. S. Hoskins and Homer A. Hoskins, officers of the Midland Carbon Company and the Occidental Oil & Gas Company and that we know them to be honest and truthful men and good citizens, that we know the Midland Carbon Company has been running at full capacity but little over one year and that we know the enforcement of the so-called carbon black law will be very damaging to the Midland Carbon Company, that we know that a Gasoline Plant treats all the gas supplied to said Carbon Company and secures therefrom a considerable amount of high grade gasoline and that we know that, if the law is enforced and the Carbon Plant shut down, the total domestic consumption of natural gas would not warrant maintaining the above mentioned gasoline plant and that enforcement of the law above mentioned would cause the removal of both the Carbon Plant and the Gasoline Plant from our vicinity, a removal of our only large industries, that we know these industries have been the chief factors, since their coming, in building up our town, that they were first to supply our town with natural gas fuel and that we know they provide steady employment for a great many men at better than living wages, that they have been of assistance in maintaining a road which is vital to our town, and that, individually and collectively, we desire that the Occidental Oil & Gas Company and the Midland Carbon Company be permitted to continue to operate. There is now operating in conjunction with them a dehydrating plant and as the system now stands we do not consider their business an economic waste.

E. W. CUFT.
A. O. MARTENSEN.
PETER SCHOW.
J. H. HINCKLEY.
G. B. WILSON.
CHARLES B. MAIN.
W. H. SIMMONS.
W. E. GODFREY.
J. M. SIMMONS.
J. P. EGAN.
TOM. L. WATKINS.
JOHN R. MAXWELL.
GEO. RASMUSSEN.
B. F. MARTIN.
W. G. SIMMONS.
W. C. SIMMONS.
P. L. EGAN.
N. C. SCHOW.
S. J. EGBERT.
L. A. EGBERT.
A. E. ACTON.
RAY WILSON.
F. J. WEIGHT.
N. P. JOHNSON.
J. E. PALMER.
CHARLES A. WELCH.
GRANT TAGGART.
FRED CROSBY.

Sworn to and subscribed before me this 7th day of November, 1919

L. M. SMITH,
Notary Public.

[SEAL.]

My commission expires September 2nd, 1923.

Endorsements: No. 1080 Civil. In the U. S. Dist. Court for the Dist. of Wyoming. Midland Carbon Co., et al., vs. William L. Walls, et al. Affidavit of W. E. Croft, et al. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

190 STATE OF NEW YORK,
County of New York, ss:

F. F. Curtze, being duly sworn, deposes and says:

I am vice-president of the Complainant Corporations herein. I reside at Erie, Pennsylvania, and am president of the Erie Trust Company.

I am familiar with the production and sale of natural gas in Pennsylvania, West Virginia, Louisiana, and other States. My Practical experience in the production and sale of natural gas, and in the manufacture of carbon black therefrom, extends over more than thirty years. I have been connected as officer and stockholder with many different companies engaged in natural gas production and in carbon black manufacture, and have been personally engaged in the direction of such production and manufacture.

Experience has shown that carbon black factories may be located at one point for long periods of years without causing exhaustion or appreciable diminution of the natural gas supply.

To state instances within my knowledge, such manufacture has been conducted for over thirty years at Kane, Pennsylvania, a city of 6,600 inhabitants, without interfering with the local supply of gas for other purposes. At Grantsville, West Virginia, a carbon black works of nearly the same capacity as the Midland Plant has been in operation for about twenty years. At Weston, West Virginia,
191 carbon black manufactured has continued for about eighteen years. Another factory at Wilsonburg, West Virginia operated for about seventeen years. In many other instances within my knowledge carbon black factories have been in operation for periods of from ten to twenty years without impairing the gas supply of other consumers.

Another fact in connection with natural gas production that I desire to emphasize is that the diminution in pressure or volume or the exhaustion of a particular well or wells does not at all prove the exhaustion of the field. On the contrary, it is a matter of common experience for particular wells to become diminished or exhausted and for the loss to be made good, or more than made good, by the drilling of new wells in the same field. Particularly is this true in new and slightly developed fields, where only a comparatively few wells have been drilled, as is the case in the Big Horn Basin.

In practical operations for natural gas in reasonably productive areas, one well may on the average be drilled to every ten acres of land. I have known of cases where gas wells were drilled much more closely together, with good commercial results.

Even in the older gas producing regions of West Virginia and

Pennsylvania, the drilling of new wells is being constantly carried on. This is the way in which the output of gas is kept up and increased. For example, many new wells to my personal knowledge are drilled each year in Lewis, Doddridge, Kanawha, Logan and other principal gas producing counties of West Virginia, and many old wells located in the same regions are annually abandoned.

For detailed statistics in confirmation of these statements I respectfully refer to the publication of the United States Geological Survey entitled "Natural Gas in 1917."

With reference to the proportion of the open-flow capacity of a gas well that may be safely used without overstraining the well, I am conversant with the practice of natural gas operators, and depose that from twenty to twenty-five per cent ordinarily repre-
192 sents reasonable and safe operating practice.

F. F. CURTZE.

Subscribed and sworn to before me this 17th day of November, 1919.

[SEAL.] TOWNSEND MORGAN,
Notary Public, No. 186, New York County, Register's No. 10108.

Commission expires March 30, 1920.

Endorsements: No. 1080, Civil. In the District Court of the United States for the District of Wyoming. Midland Carbon Company and Occidental Oil & Gas Co., Complainants, against William L. Walls, et al., Defendants. Affidavit. Filed Nov. 21, 1919. Charles J. Ohnhaus, Clerk.

193 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL & GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney-General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Notice.

To the Complainants above named, and to Messrs. Lacey & Lacey, their Attorneys:

You are hereby notified that the defendants in the cause above entitled, have on this — day of October, A. D. 1919, filed a Motion to Dissolve Temporary Restraining Order, a copy of which is herewith served upon you.

You are further notified that at the incoming of Court, on, to-wit, November 8, A. D. 1919, at the hour of ten o'clock A. M., or as soon thereafter as counsel can be heard, said Motion will be called up for hearing and disposition, when and where you may attend if you see fit.

W. L. WALLS,
Atty Gen'l.
T. P. WILCOX,
Ass't.,
Solicitors for Defendants.

HENRY E. LUTZ,
Of Counsel.

Received a copy of the above notice, together with a copy of the Motion therein mentioned, this 31 day of October, A. D. 1919.
HERBERT V. LACEY.
JOHN W. LACEY.

194 Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In equity. Midland Carbon Co. et al. v. William L. Walls, etc., et al. Notice. Filed Dec. 13, 1919. Charles J. Ohmhaus, Clerk.

195 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL & GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney-General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Petition for Appeal.

To the Honorable, the District Court of the United States for the District of Wyoming:

The above named William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, defendants in the cause above entitled, feeling aggrieved by the decree and order granting the interlocutory injunction rendered and entered in the above entitled cause on the 21st day of November, A. D. 1919, do hereby appeal from said order and decree, to the Supreme Court of the United States, for the reasons set forth in the assignment of errors filed herewith, and they respectfully pray that this appeal be allowed and that citation be issued as provided by law, and that a transcript of the record, proceedings and documents upon which said

decree and order was based, duly authenticated, be sent to said The Supreme Court of the United States, sitting at Washington, District of Columbia, under the rules of such Court in such cases made and provided.

And your petitioners further pray that the proper order relating to the security to be required of them, be now made.

W. L. WALLS,
Attorney General.
T. PAUL WILCOX,
Ass't Att'y Gen'l.
HENRY E. LUTZ,
Solicitors and of Counsel for Defendants.

196 Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Company et al., Complainants, vs. William L. Walls, etc., et al., Defendants. Petition for Appeal. Filed Dec. 13, 1919. Charles J. Ohnhaus, Clerk.

197 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL & GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney-General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Order Allowing Appeal.

On motion of William L. Walls, Esquire and Henry E. Lutz, Esquire, Solicitors and of Counsel for defendants in the above entitled cause, it is hereby ordered that an appeal to the Supreme Court of the United States from the Order and Decree granting an Interlocutory Injunction heretofore filed and entered herein, be, and the same is, hereby allowed, and that a certified transcript of the record, testimony, affidavits, exhibits, stipulations and all proceedings be forthwith transmitted to said Supreme Court of the United States.

It is further ordered that the bond on appeal be fixed at the sum of $1,000.00, the same to act as a bond for costs.

Dated December 13th, 1919.

JOHN A. RINER,
Judge.

Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Company et al., Complainants, vs. William L. Walls, etc., et al., Defendants. Order Allowing Appeal. Filed Dec. 13, 1919. Charles J. Ohnhaus, Clerk.

198 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL & GAS COMPYNY, Complainants.

vs.

WILLIAM L. WALLS, Attorney-General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Assignment of Errors.

Come now the defendants above named, by their solicitors, and respectfully aver and allege that the Honorable the District Court of the United States within and for the District of Wyoming, erred in the cause foregoing, in the respects following, to-wit:

1. That said Court erred in granting the application of the complainants herein for an interlocutory injunction, and erred in entering an order granting and allowing such injunction.

2. That the Court erred in finding and holding the act of the legislature of the State of Wyoming set forth in the complaint herein, to be unconstitutional and void.

3. That the Court erred in failing and refusing to find and to hold said act of the legislature of the State of Wyoming a competent and valid exercise of the police power of the State.

4. That the Court erred in failing and refusing to find and to hold that the use of natural gas for the manufacture of carbon black alone is a wasteful use thereof.

5. That the Court erred in failing and refusing to find and to hold that said act of the State of Wyoming, in effect merely prescribes the right of paramount or preferential use of natural gas for domestic and industrial purposes within the specified radius.

6. That the Court erred in failing and refusing to find and to hold the said act to be a reasonable and valid exercise of the police power of the State and of the legislative discretion to regulate
199 the use and sale of natural gas within a reasonable radius of cities and towns.

7. That the Court erred in its failure and refusal to find and to hold the said statute to be a true measure of conservation.

8. That the Court erred in failing and refusing to dismiss the bill of complaint of the complainants herein, for want of equity.

9. That the Court erred in failing and refusing to find and to hold that there are and were reasonable grounds for the enactment of the statute in question, and erred in its refusal to sustain the said legislation.

10. That the Court erred in its refusal to receive in evidence articles of standard authors upon the subject of the manufacture of carbon black, particularly the treatment thereof in that certain publication known as the "Hand Book of Natural Gas, published by the Metric Metal Works of Erie, Pennsylvania, in the year 1915, where it is said, page 485 thereof:

"Carbon Black.—The manufacture of carbon black from natural gas has become an extensive industry through the gas fields of West Virginia. Invariably the factories are located in gas fields in remote sections and away from any thickly settled districts or cities. While the use of natural gas for this purpose has been criticised on account of the small financial return per thousand cu. ft. of gas, consideration must be given to the fact that if the same gas were piped to a market and a larger gross income received the actual profit would not be much different from that obtained from making carbon black.

"It takes about fifteen hundred cubic feet of gas to make one pound of carbon black, and the factories usually operate twenty-four hours a day.

"Generally a carbon black factory consists of a row of low, sheet iron buildings in which are long rows of troughs. Under
gon these troughs the gas is burned through common jet burners, the combustion taking place with an insufficient supply of air, resulting in a heavy deposit of unconsumed carbon, or soot, on the under side of the troughs. This soot, or carbon black, is then scraped off and placed in twelve-and-one-half pound bags, which in turn are barreled for shipment.

"In this process no use is made of the heat energy of the gas, other than that required to separate the carbon from the hydrogen and other constituents, and it is therefore very wasteful."

11. That the Court erred in its refusal to receive in evidence the several public bulletins of issue by the Government of the United States and of the Department of the Interior and of the Smithsonian Institute with relation to the subject of carbon black and the use of natural gas for the manufacture thereof, and erred in its refusal to receive in evidence the following: Bulletin 102, Part 7, Smithsonian Institution, entitled "Natural Gas: its production, service and conservation" by Samuel S. Wyer of Columbus, Ohio, Washington Government Printing Office, 1918, at pages 51 and 52, where it is said:

"Waste and Conservation of Natural Gas.—Definition of Conservation.—True conservation, is not hoarding, but the wise use of natural resources and it implies not merely the preserving in unimpaired efficiency, but also a wise and equitable exhaustion with a maximum efficiency and a minimum waste. The heart of the natural gas conservation problem is the conflict between the present and the future. The individual land owner is interested primarily

only in immediate present personal returns. That is, he is thoughtless and indifferent with respect to the future. The Public—at least the 2,000,000 domestic natural gas consumers and the 10,000,000 people dependent on natural gas for their cooking, heating, and lighting purposes—are interested in conserving the supply and bringing about a slow, wise and economical exhaustion so as to insure continuity of service for the future.

Conservation, therefore, demands intensive rather than extensive use, takes cognizance of equitable distribution, aims to bring about social justice, and means the greatest good to the greatest number—and that for the longest time. Of all the pieces of extravagance of which the American people have been guilty, perhaps their reckless and wasteful use of natural gas is the most striking—not the most important, but the most striking. This product severely limited in quantity, which can last only a few years at most, has been handled by us as if it were illimitable.

201 In reference to natural gas the great and pressing necessity is to stop its appalling waste by enacting and enforcing proper legislation. This ideal fuel should be used with the severest economy in order to prolong its life, which will be brief at best."

and at page 55 of said Bulletin 192, where it is said:

"Carbon Black.—This is a form of improper use, rather than absolute waste. The carbon black industry in West Virginia uses 50 per cent more gas then is furnished to all of the domestic natural gas consumers in that State."

and at pages 59 and 60 of said Bulletin 192, where it is said:

"Definition of Carbon Black.—In American trade the term "Lamp black" is usually understood to be a soot deposit by the smudge process and made from oil, resin, or some other solid or liquid raw material, whereas "Carbon Black" is the term applied to a black deposited by actual contact of a flame upon a metal-ic surface.

Waste in Carbon Black Manufacture.—Carbon black is now made by the wasteful process of incomplete combustion of natural gas. That is, the gas is simply burned in the open and the flame impinging against a metal plate makes the black deposit known as carbon black. From one and one-eighth to one and one-half pounds of carbon black are made to each M cubic feet of gas burned. The only product obtained is the carbon black, and this utilizes only a very small percentage of the total carbon content of the gas.

The total annual quantity of natural gas used for carbon black manufacture is more than 26,000,000 M cubic feet. This wastes about ten times as much gas as was used in the City of Louisville, or the equivalent of one-eighth of the domestic natural gas consumption in the United States.

Doctor J. B. Garner, of the Mellon Institute of Industrial Research, Pittsburg, Pennsylvania, has demonstrated that with correctly designed appliances the yield of carbon black can be made three times as high as that usually obtained by the wasteful process

of incomplete combustion, and in addition thereto save a useable commercial gas."

Wherefore, defendants pray that the said order and decree be in all things reversed, for naught held and set aside, and that the bill of complaint herein be dismissed and in all things denied.

W. L. WALLS,
T. PAUL WILCOX,
HENRY E. LUTZ,
Solicitors for Defendants and Appellants.

Endorsements: No. 1080. In the District Court of the United States, for the District of Wyoming. Midland Carbon Co., et al. Plaintiffs, vs. William L. Walls, et al., Defendants. Assignment of Errors. Filed Dec. 13, 1919. Charles J. Ohnhaus, Clerk.

202 Know all Men by these Presents,

That we, William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming are held and firmly bound unto Midland Carbon Company and Occidental Oil and Gas Company, in the full and just sum of One Thousand Dollars, to be paid to the said Midland Carbon Company and Occidental Oil and Gas Company, their successors or assigns to which payment well and truly to be made, we bind ourselves, our heirs, executors, and administrators, successors or assigns, jointly and severally by these presents. Sealed with our seals, and dated this 13th day of December, A. D. 1919.

Whereas, lately at the November term of the District Court of the United States, within and for the District of Wyoming, in a suit depending in said Court between Midland Carbon Company and Occidental Oil and Gas Company, Plaintiffs, and William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants, there was rendered an interlocutory order of injunction against the said Defendants, and the said defendants have appealed therefrom to reverse said order and decree in the aforesaid suit, and the citation directed to the said Midland Carbon Company and Occidental Oil and Gas Company, citing and admonishing them to be and appear in the Supreme Court of the United States, at the City of Washington, in the District of Columbia, sixty days from and after the date of said citation.

Now, the condition of the above obligation is such, that if the said William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, shall prosecute their said appeal to effect and shall answer all costs if they fail to

make good their plea, then the above obligation to be void, else to remain in full force and virtue.

NATIONAL SURETY COMPANY.
By C. W. RINER. [SEAL.]
Its Attorney in Fact.
By W. L. WALLS.
Atty Gen'l.

203 FRANK A. LITTLE. [SEAL.]
Co. & Pros. Atty. Big Horn Co.
ROBERT D. CAREY. [SEAL.]
Governor, State of Wyoming.
By W. L. WALLS.
Atty.

Approved:
JOHN A. RINER.
Judge.

Endorsements: No. 1080. In the District Court of the U. S. States, for the District of Wyoming. Midland Carbon Co., et al., Plaintiffs, vs. Wm. L. Walls, et al., Defendants. Bond on Appeal. Filed Dec. 13, 1919. Charles J. Ohnhaus, Clerk.

204 In the District Court of the United States for the District of Wyoming.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Citation.

To Midland Carbon Company, a corporation, and Occidental Oil and Gas Company, a corporation, Greetings:

You are hereby cited and admonished to be and appear in the Supreme Court of the United States at Washington in the District of Columbia sixty days from and after the day this citation bears date, pursuant to an appeal allowed and filed in the office of the Clerk of the United States District Court within and for the District of Wyoming, wherein William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, Wyoming, and Robert D. Carey, Governor of the State of Wyoming, are appellants, and you are appellees, to show cause, if any there be why the order and decree granting an interlocutory injunction against the said appellants as in the said appeal mentioned, should not be corrected, and why speedy justice should not be done in that behalf.

Witness, the Honorable John A. Riner, Judge of the United States District Court for the District of Wyoming, this 13th day of December, 1919.

JOHN A. RINER,
Judge.

265 Service of the above and foregoing citation on appeal is hereby accepted on behalf of appellees, Midland Carbon Company, and Occidental Oil and Gas Company, and all other service is hereby waived.

HERBERT V. LACEY,
JOHN W. LACEY,
Solicitors for Midland Carbon Company and Occidental Oil & Gas Company.

[Endorsed] No. 1080. In the District Court of the United States for the District of Wyoming. Midland Carbon Company et al., Plaintiffs, vs. William L. Walls et al., Defendants. Citation. Filed Dec. 13, 1919. Charles J. Ohlhaus, clerk.

265 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming; Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Stipulation and Precipe for Transcript.

It is hereby stipulated and agreed by and between the parties hereto, by their respective solicitors, that the Clerk of this Court shall prepare and certify as the record on appeal in the cause above entitled, the following:

Bill of Complaint.
Order granting temporary restraining order.
Answer.
Motion to dissolve temporary restraining order.
Notice of said last named motion.
All orders in cause.
All affidavits of both plaintiffs and defendants, omitting formal parts.
Stipulation of parties in re evidence at hearing, made by defendants, and rulings thereon and exceptions thereto.
Order granting interlocutory injunction.
All proceedings in taking appeal.

This stipulation shall be a precipe to the clerk for the foregoing.

HERBERT V. LACEY,
JOHN W. LACEY,
Solicitors for Complainants.
W. L. WALLS,
T. P. WILCOX,
HENRY E. LUTZ,
Solicitors for Defendants.

397 Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. In Equity. Midland Carbon Company et al., complainants, v. William L. Walls, etc., et al., defendants. Stipulation. Filed Dec. 13, 1919. Charles J. Graham, Clerk.

398 In the District Court of the United States for the District of Wyoming.

In Equity.

MIDLAND CARBON COMPANY and OCCIDENTAL OIL AND GAS COMPANY, Complainants,

vs.

WILLIAM L. WALLS, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Defendants.

Stipulation.

It is hereby stipulated and agreed by and between the parties hereto, by their respective solicitors, that at the hearing of the cause above entitled on, to-wit November 21, A. D. 1919, there was offered in evidence by the defendants the following:

That portion of page 485 of the Hand Book of Natural Gas, published by the Metric Metal Works, of Erie, Pennsylvania, in the year 1915, reading as follows, to-wit:

"Carbon Black.—The manufacture of carbon black from natural gas has become an extensive industry through the gas fields of West Virginia. Invariably the factories are located in gas fields in remote sections and away from any thickly settled districts or cities. While the use of natural gas for this purpose has been criticised on account of the small financial return per thousand cu. ft. of gas, consideration must be given to the fact that if the same gas were piped to a market and a large gross income received the actual profit would not be much different from that obtained from making carbon black.

"It takes about fifteen hundred cubic feet of gas to make one pound of carbon black, and the factories usually operate twenty-four hours a day.

"Generally a carbon black factory consists of a row of low, shed iron buildings in which are long rows of troughs. Under the troughs the gas is burned through common jet burners, the combustion taking place with an insufficient supply of air, resulting in a heavy deposit of unconsumed carbon, or soot, on the under side of the troughs. This soot, or carbon black, is then scraped off and packed in twelve-and-one-half pound bags, which in turn are boxed for shipment.

"In this process no use is made of the heat energy of the gas other than that required to separate the carbon from the hydrogen and other constituents, and it is therefore very wasteful.

And also those portions of Bulletin 102, Part 7, Smithsonian Institution, entitled, "Natural Gas: Its Production, Service and Conservation" by Samuel S. Wyer of Columbus, Ohio. Washington Government Printing Office, 1918, at pages 7 and 52, as follows, to-wit:

"Waste and Conservation of Natural Gas. Definitions of Conservation.

"True conservation is not hoarding, but the wise use of natural resources, and it implies not merely the preserving in unimpaired efficiency, but also a wise and equitable exhaustion with a maximum efficiency and a minimum waste. The heart of the natural gas conservation problem is the conflict between the present and the future. The individual land owner is interested primarily only in immediate present personal returns. That is, he is thoughtless and indifferent with respect to the future. The Public—at least the 2,000,000 domestic natural gas consumers and the 10,000,000 people dependent on natural gas for their cooking and lighting purposes—are interested in conserving the supply and bringing about a slow, wise and economical exhaustion so as to insure continuity of service for the future.

"Conservation, therefore, demands intensive rather than extensive use, takes cognizance of equitable distributions, aims to bring about social justice, and wants the greatest good to the greatest number—and that for the longest time.

"Of all the pieces of extravagance of which the American people have been guilty, perhaps their reckless and wasteful use of natural gas is the most striking—not the most important, but the most striking. This product severely limited in quantity, which can last only a few years at most, has been handled by us as if it were illimitable.

"In reference to natural gas the great and pressing necessity is to stop its appalling waste by enacting and enforcing proper legislation. This ideal fuel should be used with the utmost economy in order to prolong its life, which will be brief at best."

and page 55 of said bulletin, where it is said:

"Carbon black —

"This is a form of improper use, rather than absolute waste. The carbon black industry in West Virginia uses 50 per cent more gas than is furnished to all of the domestic natural gas consumers in that State."

and pages 59 and 60 of said bulletin, where it is said:

"Definition of Carbon Black.

"In American trade the term 'Lamp Black' is usually understood to be a soot deposit by the smudge process and made from oil, resin, or some other solid or liquid raw material, whereas 'Carbon Black' is the term applied to a black deposited by actual contact of a flame upon a metallic surface."

"Waste in Carbon black manufacture.

"Carbon black is now made by the wasteful process of incomplete combustion of natural gas. That is, the gas is simply burned in the open and the flame impinging against a metal plate makes the black deposit known as carbon black. From one and one-eighth to one and one-half pounds of carbon black are made to each M. cubic feet of gas burned. The only product obtained is the carbon black, and this utilizes only a very small percentage of the total carbon content of the gas.

210 "The total annual quantity of natural gas used for carbon black manufacture is more than 26,000,000 M. cubic feet. This wastes about ten times as much gas as was used in the City of Louisville, or the equivalent of one-eighth of the domestic natural gas consumptions in the United States.

"Doctor J. B. Garner, of the Mellon Institute of Industrial Research, Pittsburgh, Pennsylvania, has demonstrated that with correctly designed appliances the yield of carbon black can be made three times as high as that usually obtained by the wasteful process of incomplete combustion, and in addition thereto save a useable commercial gas."

It is further stipulated that on objection made, all and singular of said offered evidence was rejected and excluded by the Court, and exception reserved thereto by said defendants.

HERBERT V. LACEY,
JOHN W. LACEY,
Solicitors for Complainants.
W. L. WALLS,
HENRY L. LUTZ,
Solicitors for Defendants.

Endorsements: No. 1080. In the District Court of the United States for the District of Wyoming. Midland Carbon Company, et al., Complainants, vs. William L. Walls, Attorney General of the State of Wyoming, et al., Defendants. Stipulation. Filed Dec. 17, 1919. Charles J. Ohnhaus, Clerk.

211 UNITED STATES OF AMERICA,
District of Wyoming, ss:

I, Charles J. Ohnhaus, Clerk of the District Court of the United States for the District of Wyoming, do hereby certify the above and foregoing pages (1) to (210), both inclusive, to be a true, correct

and complete transcript and copy of the record and proceedings, and of all thereof, as directed by Praecipe for Transcript, in a certain cause lately in said Court pending, wherein Midland Carbon Company and Occidental Oil and Gas Company are complainants, and William L. Walls, Attorney-General of the State of Wyoming, Frank A. Little, prosecuting attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, are defendants as full and complete as the same still remains on file and of record in my office at Cheyenne.

In testimony to the above, I do hereto sign my name and affix the seal of said court, at Cheyenne, in said District, this twenty-third day of December, A. D. 1919.

[Seal United States District Court, District of Wyoming.]

CHARLES J. OHNHAUS,
Clerk of U. S. District Court, District of Wyoming.

212 In the Supreme Court of the United States.

Appeal from the District Court of the United States for the District of Wyoming.

WILLIAM L. WALLS, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Appellants,

vs.

MIDLAND CARBON COMPANY AND OCCIDENTAL OIL AND GAS COMPANY, Appellees.

Stipulation.

It is hereby stipulated and agreed by and between the parties hereto, by their respective solicitors, that the Clerk of the Supreme Court of the United States shall print, as the record on appeal in the cause above entitled, the entire transcript as prepared and certified by the Clerk of the District Court of the United States for the District of Wyoming, save and except that there shall be omitted therefrom the formal parts of the several affidavits included within said transcript, to wit, the captions and conclusions.

WM. L. WALLS,
HENRY E. LUTZ,
Solicitors for Appellants.
HERBERT V. LACEY,
JOHN W. LACEY,
Solicitors for Appellees.

[Endorsed:] In the Supreme Court of the United States. William L. Walls, etc. et al., Appellants, v. Midland Carbon Company et al., Appellees. Stipulation.

213 [Endorsed:] File No. 27,422. Supreme Court U. S. October Term, 1919. Term No. 667. William L. Walls etc., et al., Appellants, vs. Midland Carbon Company et al. Stipulation as to printing record. Filed Jan. 8th, 1920.

Endorsed on cover: File No. 27,422. Wyoming, D. C., U. S. Term No. 667. William L. Walls, Attorney General of the State of Wyoming, Frank A. Little, Prosecuting Attorney of Big Horn County, and Robert D. Carey, Governor of the State of Wyoming, Appellants, vs. Midland Carbon Company and Occidental Oil and Gas Company. Filed January 9th, 1920. File No. 27,422.

In the Supreme Court of the United States.

OCTOBER TERM, 1919.

NO. 667.

WILLIAM L. WALLS, ATTORNEY GENERAL OF THE STATE OF WYOMING: FRANK A. LITTLE, PROSECUTING ATTORNEY OF BIG HORN COUNTY, AND ROBERT D. CAREY, GOVERNOR OF THE STATE OF WYOMING, APPELLANTS,

vs.

MIDLAND CARBON COMPANY AND OCCIDENTAL OIL AND GAS COMPANY, APPELLEES.

Appeal from the District Court of the United States for the District of Wyoming.

MOTION TO ADVANCE UPON DOCKET.

Come now the appellants above named, by their counsel, and respectfully move this Honorable Court to advance the cause above entitled upon its docket, and to set the hearing of the argument hereof at the

earliest practicable day consistent with the convenience of this Honorable Court, and in this behalf, show:

1. That this cause involves the constitutionality of a statute of the State of Wyoming, and against the enforcement of which the Court below granted an interlocutory injunction on, to-wit, November 21, A. D. 1919, and from which order, direct appeal has been taken to this Honorable Court.

2. That under and by virtue of Section 266 of the Judicial Code of the United States, this cause is of the class therein provided to take precedence upon the docket.

3. That appellants herein have lodged with the clerk of this Honorable Court their briefs and argument upon the questions at issue.

4. That further, such is the importance of this cause to the State of Wyoming, pertaining as it does, to its natural gas supply, and such is its importance to those of its citizens affected by it, that it is to the best interests of the State that this cause be heard as soon as may be.

WHEREFORE, appellants respectfully pray the setting hereof at the earliest day on which it can be heard.

.....,
Attorney General of the State of Wyoming.

.....,
Counsel for Appellants.

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In the Supreme Court of the United States.

OCTOBER TERM, 1919.

NO. 667

WILLIAM L. WALLS, ATTORNEY GENERAL OF THE STATE OF WYOMING: FRANK A. LITTLE, PROSECUTING ATTORNEY OF BIG HORN COUNTY, AND ROBERT D. CAREY, GOVERNOR OF THE STATE OF WYOMING, APPELLANTS,

vs.

MIDLAND CARBON COMPANY AND OCCIDENTAL OIL AND GAS COMPANY, APPELLEES.

Appeal from the District Court of the United States for the District of Wyoming.

BRIEF AND ARGUMENT FOR APPELLANTS

STATEMENT.

On February 28, 1919, the Wyoming Legislature passed an act, commonly called the Carbon Black Law, by its terms to become effective September 30, 1919, and which, at this juncture to but generally

describe, declares that burning natural gas for the manufacture of carbon black is an extravagant and wasteful use, and provides that such use shall not be permitted within ten miles of an incorporated town or industrial plant, unless the heat so generated shall be applied to other manufacturing or domestic purposes.

On September 29, 1919, or immediately prior to the date prescribed for the act to become effective, the Midland Carbon Company and the Occidental Oil and Gas Company filed their bill in equity in the Court below, alleging constitutional invalidity of the act in question. A temporary restraining order was immediately awarded. Hearing upon the application for an interlocutory injunction was had on November 21, 1919, and this application was also granted.

Further statement of the case will be found in a review of the pleadings, in which we beg to be indulged.

THE BILL.

Omitting formal allegations, the bill asserts (p. 2, Trans.) that the Midland Carbon Company is engaged in the manufacture of carbon black from natural gas in the State of Wyoming. That on December 26, 1916, it became authorized to do business in the State as a foreign corporation. That prior to the enactment of the law in question, it erected and proceeded to operate a carbon black plant in Big Horn County, Wyoming, about one and one-half miles distant from the Town of Cowley. That its plant consists of ninety structures of iron and steel composition, each building being of the approximate

dimensions of 114 feet in length by 12 feet in width. That the area occupied is about 24 acres, and the aggregate cost of the factory, expended prior to the enactment of the statute, exceeded $375,000 (p. 3, Trans.). That the output of the factory is 13,000 lbs. daily of carbon black.

The process of carbon manufacture is next described. It is alleged (p. 3, Trans., par. 4), to be "produced only by burning natural gas in contact with a metallic surface."

The importance of its production as an ingredient of printing inks, carbon papers, stove polishes and rubber compounds is next set out, and it is claimed to have been (p. 3, Trans.) as of the "highest usefulness as a war material."

That the consumption of natural gas for the purpose of its manufacture has for many years (p. 4 Trans.) been a "well known" and legitimate use of gas. That natural gas has long been so used in Pennsylvania, West Virginia, Kentucky, Ohio, Indiana, Louisiana, Oklahoma and Montana, free from legislative restriction.

Next follows an allegation commendatory of the industry, its utility and its beneficience, and that in the event of its curtailment, "incalculable harm" will be worked "to printers, publishers and readers of books, periodicals and newspapers."

That (par. 5, p. 4, Trans.) the Midland Carbon Company uses the most improved and modern designs, processes and appliances; that it allows no gas to escape into the air, and that it "does not employ pumps, compressors or other means artificially to increase the volume of gas supplied to said factory, but uses only such gas as, by the natural

laws of flowage, flows from the wells supplying the same."

It is next stated that 25% only of the open flow capacity is used from any well and that prior to being consumed in the manufacture of carbon black, the gas is first passed thru a gasoline absorption plant.

Paragraph 6th (p. 5, Trans.) of the bill digresses to extoll the latter process and its product.

It it next alleged (par. 7, p. 5, Trans.), that the co-complainant, the Occidental Oil and Gas Compan, owns the lands upon which is the source of gas supply, and that its business of gas production is "an integral and inseparable part of the business conducted" by the Carbon Company. Reference is then had to Exhibits A and B attached to the bill, which set forth the contractual relationship between the two complainants. (The bill is verified on behalf of both complainants (pp. 13 and 14, Trans.) by one F. F. Curtze, as Vice President of each).

It is next alleged (p. 6, Trans.) that the Occidental Oil and Gas Company has expended and invested substantial sums of money, and that another corporation, the Eastern Fuel Company, had acquired by contract, the right to extract the gasoline content from the gas.

Par. 9 (p. 6, Trans.) charges all of the several situations to have come about prior to the enactment of the statute, which is then set out verbatim, (p. 7, Trans.) and reads:

"Conservation of Natural Gas.

"An act for the protection and conservation of the supply of natural gas of

the State of Wyoming, prohibiting the waste and wasteful use of natural gas through the burning or consumption thereof for the manufacture or producing of carbon or other resultant products therefrom, prohibiting the taking, using, sale or other disposition of natural gas from gas wells for such purposes and providing penalties for the violation of such Act.

"Be it enacted by the Legislature of the State of Wyoming:

"Section 1. The use, consumption or burning of natural gas taken or drawn from any natural gas well or wells, or borings from which natural gas is produced for the products where such natural gas is burned, consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas well or source of supply is located within ten miles of any incorporated town or industrial plant.

"Section 2. No person, firm or corporation having the possession or control of any natural gas well or wells, except as herein provided, or borings from which natural gas is produced, whether as a contractor, owner, lessee, agent or manager, shall use, sell or otherwise dispose of natural gas, the product of any such well or wells or borings for the purpose of manu-

facturing or producing carbon or other resultant products from the burning or consumption of such natural gas, without the heat therein contained being fully and actually utilized for other manufacturing purposes or domestic purposes.

"Section 3. Any person, firm or corporation violating any of the provisions of this Act shall be guilty of a misdemeanor and shall be punished by a fine of not less than One Hundred Dollars ($100) or more than One Thousand Dollars ($1,000) for each offense and each and every day in which any person, firm or corporation shall violate any of the provisions hereof shall constitute a separate offense hereunder and subject the offender to the penalty hereby provided.

"Section 4. This Act shall take effect and be in force after September 30th, 1919."

It is charged (p. 7, Trans.) that said Act was read in the Legislature for the first time on February 12, 1919, and passed nine days later, on the 21st of that month, "without according to the complainants or to the public any hearing or opportunity to present any facts relating to said industry." It is not alleged that it was incompetent for the Legislature to function without according complainants a hearing, nor is it alleged that they or either of them ever solicited an opportunity to be heard.

It is next asserted that all of the present gas supply of plaintiffs was within a ten mile radius or distance of either one of the incorporated towns of Lovell or Cowley.

Par. 12, (p. 8, Trans.) presents the conclusion that the act in question is violative of the Fourteenth Amendment of the United States Constitution, depriving complainants of liberty and property without due process of law, and denies to them the equal protection of the laws, and impairs the obligation of their said mentioned contracts.

The 13th paragraph of the Bill (p. 8, Trans.) recites: "That there is no just occasion or reasonable necessity for such destruction of the contractural and property rights of these complainants as must necessarily result from carrying said Act into effect." It is next asserted that no one other than themselves is engaged in the carbon black manufacture, and that only one other manufacturer has ever been so engaged in that business in Wyoming, the latter operating in the vicinity of Lovell, Wyoming, or some four or five miles distant from complainants. Complainants do not allege that which is the fact, that the other manufacturer to whom they refer, closed operations obedient to the command of the statute (p. 69 Trans., Affidavit Richardson).

Cowley, Wyoming, where complainants are engaged in business, has a population of about one thousand persons. Lovell, Wyoming, about six miles distant, has twelve hundred. The total population of Big Horn County is about twelve thousand. It is alleged that the total capacity of all wells within a ten mile radius of the said towns approximates 177,000,000 cubic feet of gas per day, and it is said (p. 9, Trans.) that there is no indication of shortage in the supply of gas "in said region." That complainants have never interfered

with anyone's gas supply, but have themselves provided gas to the Town of Cowley.

Paragraph 14th (p. 9, Trans.) asserts that because of the usefulness of their product extracted by the "best known processes," and so "generally serviceable to mankind" that it is "neither a waste, nor a wasteful use of gas." The quantity of gasoline extracted is next given as two-tenths of a gallon for each 1,000 cubic feet of gas consumed, and which we shall utterly disregard, as having no sort of relation to any provision of the Statute, either immediate or remote. It is also disclosed and admitted that about 1¾ pounds of carbon black is recovered from each 1,000 cubic feet of gas burned, and which we shall later see to be only about 4% of the total carbon content. That the industry is a profitable one will be observed in the allegation that carbon black has a market value of 10 cents a pound, which is much more profitable than the sale of gas to domestic and industrial consumers.

Paragraph 15th (p. 10, Trans.) alleges that no device is known whereby the heat contained in natural gas may be fully utilized; that fuels generally waste much of their heat energy in application.

Complainants do not allege, it should be noted, that the consumption of gas for the manufacture of carbon is not to employ it as a fuel for any purpose. All fuels in all manufacturing are only used as such, whether for light, heat or power. The use of gas for the making of carbon black is foreign to any such purposes, and it is the only commercial use of gas that is foreign to such purposes. But complainants assert that because there is an escape of heat in other fuels when used as such, that the

burning of natural gas for carbon black, because they say the heat cannot be utilized, does not constitute fuel waste.

Paragraph 16th (p. 10, Trans.) informs us that complainants have no gas supply that is not within ten miles distance of an incorporated town, and that ruination and destruction will ensue to their enterprise by an enforcement of the statute in question.

Then come the specific objections to the law, which we quote (par. 17th, pp. 10-12, Trans.):

> "Your complainants further respectfully allege that said statute is not a true statute of conservation, but is arbitrary and oppressive, and deprives them respectively of the equal protection of the laws;
>
> "(1) In that it enables any third person who may by design or accident locate an industrial plant within ten (10) miles in any direction from any gas field, to limit and abridge in an important respect the use, sale and disposition of natural gas by the owner thereof who has reduced the same to possession, and to render criminal manufacturing operations which would otherwise be innocent, thereby serving a private, not a public purpose, and making the selection of those guilty of violating said act, depend not upon any difference in their delinquency, but upon the unrestrained choice and volition of any third person engaged in industrial pursuits.
>
> "(2) In that it arbitrarily classifies persons engaged in the business of carbon

manufacture, even though their factories may be located in the identical place and the heat generated therein be consequently of equal utility and value, by allowing the one who obtains gas from a source of supply located more than ten miles distant from any incorporated town or industrial plant to consume the same without utilizing the heat, while it renders criminal the identical practices on the part of the other, who derives gas from a source less than ten miles distant, thus determining those to be subjected to the penal provisions of the act by an arbitrary selection without regard to any difference between their delinquency and that of those whom it leaves unaffected.

"(3) In that it discriminates between owner or lessees of gas wells, allowing to some the unlimited acquisition, use and sale of natural gas from the common reservoir for a purpose declared by said act to be wasteful, while forbidding others to take, use or sell gas from the common reservoir for the identical purpose, thereby being utterly contrary to the true principle of conservation of natural gas, which is to secure to each of the common owners of the gas a proportionate acquisition thereof.

"(4) In that it penalizes the owners and lessees of the gas wells therein described on account of the use or manner of use which the purchaser of natural gas sold and delivered by them, and which has

ceased to be their property, may make of said natural gas.

"(5) In that it renders the lawfulness of the use or sale of natural gas for carbon manufacture, without heat utilization, from a well located within ten miles of a town wholly dependent upon whether or not said town is incorporated, such use or sale being criminal if such town be incorporated, but innocent if such town, though of equal or greater population, be unincorporated, thereby making the selection of those penalized by said act depend upon a fact bearing no relation to their delinquency.

"(6) In that no limitation contained in said act as to carbon manufacture is based upon or bears any relation to the extent or adequacy of the supply or to the extent of the requirements of any town or other industrial plant, or to the quantity of gas produced, used or sold for carbon manufacture.

"(7) In that, while the use of every fuel for other manufacturing purposes is attended by enormous losses of the heat contained in said fuel, it imposes only upon certain carbon manufacturers the utterly unreasonable requirement that their manufacturing business must cease unless the heat contained in said fuel shall be fully utilized for other manufacturing purposes.

"(8) In that under guise of regulation, its restrictions are so framed as to abolish, ruin and destroy complainants' existing

business, while leaving it open to others to engage in carbon manufacture, without saving the gasoline and without any utilization of heat whatsoever elsewhere in the State of Wyoming."

COMPLAINANTS' AFFIDAVITS.

Accompanying the Bill, there was filed a large number of affidavits, which may, in the main, be disregarded as practically their entire purport, with few exceptions, was argumentative as to the various uses and users of carbon black as a commodity, and in extolling its properties. (See pp. 25-56, Trans.) The exceptions we deem unimportant to notice at this juncture.

Upon filing the above described bill and affidavits, a temporary restraining order was issued (p. 57, Trans.). Thereafter, and on October 22, 1919, an answer was filed on behalf of the respondents, the contents of which we shall briefly set out.

THE ANSWER.

That carbon black has a variety of uses is admitted (par. 4, p. 58, Trans.) and it is alleged to be capable of manufacture from artificial gas as well as natural gas and also other substances, and which is the fact save that its manufacture from artificial gas is necessarily much more expensive. With reference to complainants' allegation that none of the several states wherein natural gas is burned for the manufacture of carbon black had imposed any restrictions upon such use, it is alleged that legis-

lation to such end had many times been attempted, at least in the States of Louisiana and West Virginia, but that the various persons, firms and companies engaged in the business had been successful in preventing the adoption of such legislation. It is next alleged (p. 59, Trans.) on information and belief, that during the active pendency of the late war, the United States Fuel Administrator classified the burning and use of natural gas for carbon manufacture, as a wasteful use of national resources, and had ordered a number of such manufacturers in West Virginia to desist their operations. It is also admitted the carbon industry has contributed to the development of the natural gas resources, but that many of such resources have only been so developed to be soon partially, if not wholly depleted thereby.

It is denied (p. 59, Trans., par. 13) that there is no justification or reasonable necessity for the act, and with reference to the allegations of the bill that there is no indication of shortage in the supply of natural gas in the region of complainants' plant for domestic or industrial use, it is asserted (p. 60, Trans.) on information and belief that in consequence of the operation of said plant for the manufacture of carbon black "that the wells from which gas is so used have been, in the year and one-half last past, about one-half depleted and exhausted of their product; that within the year and one-half last past and in consequence of such and said use of gas, the initial pressure of said wells and all thereof, has declined from 500 pounds to not to exceed 200 pounds pressure; that such and said results has so ensued and appertains to all of the

wells in the region or vicinity of those from which is used the natural gas for the manufacture of said carbon black; that it is and has been established by the United States Bureau of Mines and others competent to estimate the same, that within two years, or at most, within three years from the present time, all of said wells will have been utterly and completely depleted * * *; that such depletion will relate not only to a ll wells so furnishing gas for the manufacture of carbon black, but will likewise relate to said entire region and vicinity." That in the absence of such use of gas, the towns of Lovell and Cowley and Big Horn County and all industrial plants therein will have ample gas supply for a period of thirty years; otherwise, three years will witness gas exhaustion.

The use of natural gas for carbon black by the processes employed is alleged to be wasteful (par. 14, p. 60, Trans.). It is admitted that complainants recover approximately 1¾ pounds of carbon black from each 1,000 cubic feet of gas consumed, but it is charged that each and every 1,000 cubic feet of said natural gas in fact contains from 33 pounds to 40 pounds of carbon; that therefore the efficiency of the processes used by complainants is very low, ranging only from 2.8% to 4.6%—in other words, from 96% to 98% inefficient.

It is denied (par. 16, p. 61, Trans.) that the enforcement of the act in question will ruin or destroy complainants' business, property or income; that the said act merely prescribes the place or places from which such business may or may not draw its source of supply of gas for the manufacture of carbon black; that the results of the statute

are none other than to require either a removal of the plant or the acquisition of a new source of supply; that such, in any event, is the inevitable result upon the exhaustion of the gas in the vicinity now utilized by complainants; that the carbon black business is commonly called a "tramp industry"; that by reason of the nature of their business, they are, perforce necessity, itinerant; and that all and singular their factory construction is readily removable and portable. It is charged that complainants are without vested rights, and that they are at all times subject to the exercise of the police power of the State of Wyoming.

And in answer to the catagorical objections of complainants to the validity of the act in question, the answer sets up the following (par. 17, pp. 61-63, Trans.):

> "17. These defendants deny that said statute is either arbitrary or oppressive; deny that same is not a true statute of conservation as in paragraph 17th alleged; and in this behalf, defendants allege and show to this Honorable Court:
>
> "(a) That the use of natural gas for the manufacture of carbon black alone, is a wasteful use thereof;
>
> "(b) That it is within the power of the sovereign State of Wyoming to protect and conserve and to pass laws to protect and conserve its natural resources and to prevent the same from being dissipated and destroyed;
>
> "(c) That natural gas is one of the natural resources of said State of Wyoming.

and is a fleeting and evanescent substance, incapable of being replaced or restored when once withdrawn from the earth;

"(d) That the act in question is a competent and valid exercise of the police power of the State;

"(e) That said act, in effect, merely prescribes the right of paramount use of said natural gas for domestic and industrial purposes;

(f) That said act, while manifestly designed to discourage the use of natural gas for the manufacture of carbon black, does not prohibit such use;

"(g) That said act, in order to enforce the right of paramount use for domestic and industrial uses and to conserve the supply therefor, merely prescribes a territorial radius or limit from which natural gas shall not be withdrawn for the manufacture of carbon black.

"(1) These defendants deny the effect ascribed to said act by complainants and set forth in subdivision (1) of paragraph 17th, and further allege that any such consequences are wholly immaterial and are not a criterion of the validity of said act;

"(2) These defendants deny said act arbitrarily classifies persons engaged in the business of carbon black, as in subdivision (2) of paragraph 17th alleged, but upon the contrary say that the prohibition or restriction in said act provided is not directed against any person or persons, but is di-

rected against the source of supply of gas for the designated purposes, and further allege the delinquency to consist only of the place or places from which said gas may be withdrawn for the manufacture of carbon, preserving to incorporated towns and industrial plants a ten mile radius for their domestic uses and manufacturing needs;

(3) These defendants deny that said act discriminates between owners and lessees of gas wells, as in subdivision (3) of paragraph 17th alleged, except that those within the prescribed area or radius shall dispose of their product only for domestic and industrial uses and not for purposes defined as and declared to be wasteful;

"(4) These defendants deny the allegations of subdivision (4) of paragraph 17th, but upon the contrary, allege that said act prohibits the use, as well as the sale of gas within the prescribed radius for the several purposes declared to be wasteful;

"(5) These defendants admit that said act renders the lawfulness of the use or sale of natural gas for carbon manufacture without heat utilization from a well located within ten miles of a town, wholly dependent upon whether or not said town is incorporated; and further allege such criterion therefor to be wholly valid and competent and to rest solely within the legislative discretion;

"(6) These defendants allege, with

respect to the allegations of subdivision (6) of paragraph 17th, that it is entirely a valid and competent exercise of the police power of the State and of the legislative discretion to control the use and sale of said natural gas within any reasonable radius, irrespective of then present local requirements, or the extent or adequacy of the gas supply, and that the said legislature may competently conserve either all or any part of such natural resources;

"(7) These defendants allege, with respect to the allegations of subdivision (7) of paragraph 17th, that the act in question defines the use of gas for the manufacture of carbon black to be wasteful, and it is wholly immaterial that it has not defined the other uses thereof to be wasteful or certain uses of other fuels to be wasteful, and deny that requirement is unreasonable to provide that the heat contained in said fuel shall be fully utilized for other manufacturing purposes, and in this behalf further allege that it is manifestly the legislative intent to prevent the waste it defines and hence to conserve the natural resources of the state."

Shortly after filing the above answer, the defendants moved the Court to dissolve its order temporarily restraining the enforcement of the Act (pp. 64-65, Trans.) on the ground that the irreparable injury, if any, ensuing was as against the people of the State rather than the complainants, who, if

the law were ultimately declared invalid, would merely suffer a postponement of the receipt of their profits (some $1,600 per day).

This motion, however, the Court refused to entertain, and the case came on for interlocutory hearing November 21, 1919.

DEFNDANTS' AFFIDAVITS.

It is deemed proper at this juncture to call attention to some of the supporting affidavits filed by these appellants, as defendants below:

Attention is first called to that of R. E. Richardson (p. 68 Trans.), a civil engineer, who deposes as to his familiarity with the several gas sands and gas wells in the vicinity and neighborhood of complainants' operations, as well as the gas wells belonging to complainants; that the sands from which complainants draw their gas for carbon purposes,

> "is a free flowing sand, that is, one in which the gas has free access from one part of the field to the other, consequently the gas pressure would be approximately the same at all the wells drilled into this sand. The pressure at the wells of the Lovell Gas and Electric Company (drawing gas from the same source several miles distant) in October, 1916 * * * was 485 pounds. This pressure continued approximately the same until the end of 1917, at which time the Midland Carbon Company began their operations, since which time the pressure has noticeably decreased. During the first

eighteen months, from October, 1916, to March, 1918, the decrease was 15 pounds, and from March, 1918, to October 1st, 1919, the decrease has been 270 pounds. The pressure at the date of this affidavit (October 28, 1919) is 199 pounds, which is 41% of the pressure in October, 1916. If the present consumption of gas continues for another year, there will not be sufficient gas in this field, in the particular sand in question, to supply even the domestic uses of the Town of Lovell. • • • The total daily consumption from this particular sand amounts to about 15,000,000 cubic feet of gas. Of this amount, the Midwest Refining Company uses about 3,000,000 feet; 11,000,000 feet are used for carbon purposes, and not over 1,000,000 feet are used for all other purposes combined. During the period prior to October 1st, 1919, there were two companies using gas from this particular sand for carbon purposes, namely, the Midland Carbon Company, located at Cowley, Wyoming, and the Wyoming Gas Products Company, located at Lovell, Wyoming. The latter company, having a capacity of one-ninth the size of the Midland Carbon Company, used on an average of 1,160,000 cubic feet of gas per day. This company suspended operations on the 30th day of September, 1919, and the plant is being moved to a location approximately 100 miles distant, in order to comply with the law."

This last named company is the one referred to in paragraph 13th of complainants' bill (p. 8, Trans.) as a "small factory in the vicinity of Lovell."

Affiant next states his knowledge of the factory and buildings of the Midland Carbon Company:

> "that they are constructed in such a way that they could be moved more readily than almost any other character of construction and were evidently designed with the idea of portability in mind, and at the present rate of the consumption of gas they will have to be moved in any event, within a year."

That for all domestic and industrial purposes (carbon manufacture excluded) there was an average daily consumption in the town of Lovell for the year 1918, of 370,000 cubic feet. The carbon uses are 11,000,000 cubic feet daily. Affiant estimates that to conserve the gas now used for carbon manufacture, there would remain a sufficient supply of gas for all other industrial uses and domestic uses to last at least ten years. That in eighteen months last past and on account of carbon usage, there has been a loss of 57% of the available supply of gas (bottom p. 69, Trans.).

That the Midland Carbon Company employs in all its operations not to exceed twenty men; that a glass factory now in course of construction will have a pay roll ten times as large and will not use more than one-tenth the amount of gas consumed for carbon purposes (p. 70, Trans.).

That when the gas now being used for carbon purposes is exhausted "it is entirely problematical whether any other commercial gas sand could be developed within a distance of not less than 35 miles from the towns of Lovell and Cowley; • • • " that other gas structures in the area affected are more than ten miles distant from any incorporated town and are thus available under the law, for carbon manufacturing purposes to the practical exclusion of such use for domestic and industrial purposes.

This affiant attached to his affidavit a chart, reproduction of which is found on p. 71, Trans., whereon is visualized the declination of gas supply and pressure which affiant ascribes to the use of gas for carbon manufacture by the complainants in this cause, and to this chart attention is respectfully and earnestly invited.

AFFIDAVIT OF G. B. MORGAN.

(pp 71-73, Trans.)

Further pertinent facts are to be found in the affidavit of Mr. Morgan, the State Geologist of Wyoming since August 1, 1919, and who, prior to which, was mineral examiner and oil land inspector for the United States General Land Office, a branch of the Department of the Interior. This affiant made an extensive examination of existing conditions in the Byron gas field (the one involved herein) "with reference to the enormous use of gas in that field."

Affiant corroborates the testimony of R. E. Richardson as to the gas pressures, as shown by the meters attached to the several wells in question

(pp. 71-72, Trans.). Affiant recites facts demonstrating that

> "the gas comes from a loose free sand, the pressure being approximately constant in the sand in all parts of the field and only varying in different wells to a small extent in proportion to the amount of gas that is flowing therefrom. In other words, the conditions show conclusively that the gas flows with great ease from one part of the field to another, and that there is practically no limit to the area that one gas well will drain in this sand if allowed to flow at its full, or even one-half capacity."

With respect to the plant of the complainants, affiant says (bottom p. 72, Trans.):

> "• • • the main portion of the plant or the portion in which gas is burned is constructed almost entirely of a light steel construction covered by light-weight sheet iron plates, which are wired to the steel frame, all of which appears to be of a very portable nature. The owners would have very little difficulty in tearing down and moving this plant from one location to another. In fact, I saw a similar, although much smaller plant, being dismantled in the town of Lovell, preparatory for shipment to another location.
>
> "The process of making carbon is simple, and is similar to holding a cold plate over an old fashioned gas jet. In

fact, the process used by the Midland Carbon Company is merely an incomplete combustion of gas in an insufficient amount of air, the flames from the different jets practically touching cast iron channel plates which are suspended over the flames and are moved backward and forward at a very slow rate of speed. The carbon is scrapped off the plates into hoppers and carried to the packing houses by conveyors. All of this is mechanical and requires very little labor and supervision. In addition to the carbon which is deposited onto the plates, a vast quantity escapes into the air because a stream of black smoke can be seen from the carbon plant, which appears to stretch along the horizon for about twenty miles."

Affiant then refers (p. 73, Trans.) to his examination of one of the wells of the Occidental Oil and Gas Company, which he found to be shut down; that it had become exhausted and was "coming into water;" that another well belonging to the Ohio Oil Company in the same section of the field was "also making water."

Relative to the life of the sand, affiant says (bottom p. 73, Trans.):

"• • • Assuming that the present consumption of gas from this sand is 15,000,000 cubic feet per day (as I have been reliably informed) and that the decrease in pressure for the last year has been 150 pounds, and knowing that the present pressure is approximately 200 pounds, it is a simple

problem in mathematics to ascertain the future life of the field. In other words, at the present rate of decrease in pressure the field will be exhausted in sixteen months and there will be no pressure to force the gas out of the sand. On the same basis of reasoning, there are approximately 7,200,000,000 cubic feet left in the sand and the present consumption is 5,500,000,000 cubic feet per year."

SESSIONS' AFFIDAVITS (pp. 75-76-77, Trans.).

Next were filed the affidavits of various other persons having knowledge of the gas depletion, on account of its consumption, for the manufacture of carbon, and all were corroborative of the pressure decline. (Affidavits of E. D., B. A. and Byron Sessions, pp. 74-76, Trans.) These were to the further effect that the life of the field was being greatly shortened and also that the wells in the vicinity in question, from which no gas whatever had been drawn, were depleted to the same extent as those furnishing gas for carbon manufacture, and that untold hardship was being worked upon the people of that community.

AFFIDAVIT OF R. C. MAY (p. 77, Trans.).

This affiant was the member of the Legislature who introduced the bill in question. He states,

"My sole interest in this legislation was to conserve the gas resources of the State for the use of the people of the incorporated cities and towns thereof, for

domestic and industrial purposes, as it had come to my knowledge that these resources were being rapidly depleted, and would, in a space of not to exceed two years, be entirely exhausted through the wasteful use of natural gas in the manufacture of carbon. I therefore used every effort to secure the passage of legislation which had as its object the conservation of the natural resources of the State for the use and benefit of the people thereof."

Appellants, as defendants below, also filed other affidavits respecting the depletion of the gas supply. See those of Tippits and Mann, pp. 78-79, Trans.

OLSON AFFIDAVIT (p. 79, Trans.).

This is to the effect that during the past three years or since the discovery of natural gas in the vicinity in question, the population of the town of Lovell has practically doubled; that many buildings have been constructed; that a sugar factory, glass and tile factory have been erected; that such industries are dependent, to a large extent, on the continued existence of the supply of natural gas for fuel purposes. "That the residence and business blocks which have been constructed within the last three years have been, without exception, built with the idea of the use of natural gas for fuel purposes, and no provision has been made for the use of another form of fuel; consequently, should the supply of natural gas be exhausted prematurely, the damage and loss to the people of this community would amount to many thousands of dollars."

AFFIDAVIT OF W. OVERPACK

(pp. 80-81, Trans.).

This affiant is the manager of a brick and tile factory, which, when completed, will represent an investment of $300,000, and will employ from 200 to 250 men continuously; that except for the statute restricting the use of natural gas for carbon purposes, this industry would not have been established, as otherwise they could not have been assured of a gas supply for more than two years. That a continuance of adequate gas supply is indispensable to the industry.

AFFIDAVIT OF JOHN M'FADYEN

(pp. 83-84, Trans.).

This is the Wyoming superintendent of the Ohio Oil Company, who deposes as to his knowledge respecting the use of gas by the Midland Carbon Company. That at the inception of its operations the gas pressure was 485 pounds; that the present pressure is 187 pounds. Affiant deposes as to his "thorough knowledge and understanding of the operation of and the life of gas fields or gas wells, and that, in his opinion, at the present rate of decrease in the pressure at the said two wells of the Ohio Oil Company (drawing from the same sand as the Carbon Company) they will not be able to deliver any further gas by next spring" (the spring of 1920).

AFFIDAVIT OF R. O. NEAL (p. 82, Trans.).

The importance of the facts disclosed by this affidavit is very apparent. Affiant states:

"That he is a chemical engineer of the Bureau of Mines, U. S. Department of the Interior; that for many months last past he has been engaged in the study of the making of so-called carbon black, and of the methods employed by the carbon black industry, and is familiar with the processes thereof. That the efficiency of this industry is very low; that the largest yield of which this affiant has any knowledge, recovered by any of the manufacturers of carbon black by the burning of natural gas is not to exceed 1½ pounds per 1,000 cubic feet of natural gas, whereas, it is a well known and chemically ascertained fact that each 1,000 cubic feet of average natural gas contains approximately from 33 to 45 pounds of carbon.

"Affiant further states that while so far as he is informed, the State of Wyoming is the only State at the present time that has actually passed legislative restrictions upon the use of natural gas for the manufacture of carbon black, there has recently been a great deal of agitation against the burninig of natural gas for the manufacture of carbon black in the State of Louisiana on the ground that such use of natural gas was and is a wasteful and extravagant use thereof.

"Affiant further states that carbon black is made by incomplete combustion of natural gas, and that in the present method

not to exceed 4% of the total carbon in the gas is recovered as carbon black."

Affiant then sets forth his analysis of the gas "taken after the gas had passed through the gasoline plant of the Eastern Field Company and before use by the Midland Carbon Company," and deposes that same, amongst its other elements, contains 44-3/10 pounds carbon per 1000 cubic feet of gas.

It will be here recalled that the Midland Carbon Company pleads it recovers about 1¾ pounds of carbon per 1,000 cubic feet, or the equivalent of an admission that their process is approximately 96% inefficient.

The above review of the affidavits disposes of all of the testimony offered, with the exception of a number of affidavits (pp. 86-114, Trans.) filed by the complainants in open court on the morning of the hearing and after the hearing had opened and without prior service on the defendants, and these affidavits we shall now briefly review under the title,

COMPLAINANTS' REBUTTAL AFFIDAVITS.

The first to which we shall call attention is that of C. A. Baston (p. 86, Trans), which is sufficiently irrelevant to be almost remarkable. He "considers the product" made by the Midland Carbon Company "a very necessary article," and that the value of 1000 cubic feet of gas, when converted into gasoline and carbon black, is greater than the same amount of gas sold for fuel purposes.

Mr. Edwin Binney (p. 87, Trans.) deposes that

natural gas is the cheapest substance from which carbon black can be made; "that artificial gas can be so used, but it is not commercially practical" on account of the cost. That to so manufacture it would greatly raise the price of carbon black on the market. That in West Virginia and Pennsylvania in gas fields "no more promising" than those involved in this controversy, carbon has been manufactured for thirty years without total deprivation to others, and is consequently "of opinion" that the natural gas in the field in controversy will be abundant for all uses now being made "and all in contemplation," so far as affiant has knowledge, for not less than 25 years.

This affiant does not undertake to rebut the statement of some of defendants' affidavits to the effect that some wells have already become useless because of the intrusion of water, but he professes to further state that the reduction of initial pressure does not at all indicate the exhaustion of the field.

Omitting what we regard as utter irrelevance, this affidavit concludes, "affiant further says that in all cases where carbon black has been produced whenever the gas became more valuable in the market for any other use, the use thereof for the manufacture of carbon black, automatically ceased," and it would thus appear that the carbon industry is really not one of that beneficience that complainants elsewhere allege, since they here at least temporarily depart the role, earlier assumed, of public benefactors.

REID L. CARR, one of the attorneys for complainants below, files an affidavit (p. 89, Trans.)

disputing an allegation of the answer to the effect that the United States Fuel Administration had classified the burning of natural gas for carbon manufacture as a wasteful use of natural resources, and reiterates the uses and purposes of carbon black. He then argues that "presumably" (p. 90, Trans.) on account of such uses, the Fuel Administration "wisely refrained" from interference throughout the war.

Affiant admits, however, "on or about January 1, 1919, after the war was over, a statement did appear in the press, emanating from the Fuel Administration, recommending the removal of carbon black factories as far as possible from West Virginia to regions where the demand for gas by other users was not so great. In explanation thereof, Dr. Garfield, the Fuel Administrator, wrote me under date of January 14, 1919, a letter in which he stated:

> 'In some localities of the United States, the present demand for gas is greater than the supply. To provide enough of this gas for domestic use and for necessary industrial purposes demands a curtailment, where curtailment will produce the least harm and secure the greatest saving of gas.' "

This affiant then injects the argument that because existing markets in Wyoming will not exhaust the gas supply and because the U. S. Bureau of Mines is investigating this method of the use of natural gas, it is inconceivable that the Bureau of

Mines deem such use to be waste. All of which will be observed to be wholly beside any issue in this cause or the power of the State of Wyoming to make police regulations. But the affidavit serves as an unconscious, and doubtless wholly unintended, admission that the Fuel Administration did, by order, discriminate, on or about January 1, 1919, against carbon manufacture, and in favor of "domestic uses" and "industrial purposes," which is all the Wyoming statute seeks to accomplish.

One Victor Cotner (p. 91-92, Trans.), deposes as to the size of the gas structure from which the Midland Carbon Company draws its supply, which, in his argumentative opinion, is large; he then again deposes in a separate affidavit (p. 93, Trans.) that the officers of the Midland Carbon Company and those of the Occidental Oil and Gas Company are "honest and truthful men and good citizens," and he "considers" their product a very necessary article.

To the identical effect is the affidavit of one E. W. Croft (p. 94, Trans.).

One Maurice Hopkins (pp. 94-95, Trans.), states that he is a geologist with "more or less experience in connection with oil and gas geological questions." And that "it is not true that a decrease in pressure in a well * * * indicates that the well will be exhausted within another two years if such use is continued." This affiant also, it is to be observed, fails to refer to or account for that at least two of the wells in question have been, in fact, completely exhausted, notwithstanding the dicta of his theory to the contrary.

W. S. Hoskins, the general manager of the

Midland Carbon Company, deposes at length (pp. 95-100, Trans.) and he seeks to deny the fact the initial pressure of the wells in question has been reduced from 500 pounds to 200 pounds within the time of the operations of the plaintiff in the field. He qualifies. He states it was originally 480 pounds, and is now 200 pounds to the square inch "indicating a pressure of about 250 pounds to the square inch in the wells themselves, if taken at rock pressure." Much of the remainder of this affidavit we regard as too immaterial to subserve any possible purpose before the court. Affiant knows the cost of construction. He asserts the rival, though smaller, carbon plant moved in obedience to the statute, was unprofitable. He admits the Midland Carbon Company uses at least 7,000,000 cubic feet of gas per day, refers to gasoline extraction, an utterly immaterial matter; seeks to impeach the correctness of the information of Mr. Morgan, the Wyominig State Geologist, as to one well "coming into water." He does not refer to the other well Mr. Morgan testified to as having also made water. We quote verbatim a paragraph of this affidavit (bottom p. 98, Trans.), as follows:

> "Affiant further says that in no industrial use of natural gas as fuel is more than 50% of the heat contained therein, in any manner utilized, the unutilized heat escaping in the same manner as unutilized heat escapes from the carbon black factory, and further, that to utilize all of the heat contained in natural gas would necessarily consume all of the carbon contained in the

gas, and thereby make it impossible to manufacture the carbon black."

In other words, affiant seems to say that because those using gas for a fuel do not, because of inability, utilize to exceed 50% of the heat content, it is contended that legislation is improper, as against those who do not profess to utilize even 1% for any heating purpose and who only recover 4% of the carbon content. It is again repeated, for it should be borne in mind that the use of natural gas for carbon black is the only commercial use thereof other than for light, heat or fuel; the latter uses, with the exception of light, having for their direct purpose, the utilization of heat. Carbon manufacture has for its direct purpose the making of a mere smudge with an attendant loss of every other element to be found in natural gas.

The concluding portions of this affidavit are to the effect that all industries affected by this controversy, other than themselves, can use coal as fuel if they are so disposed. It hence seems to be the argument of this affiant that industries using as much as 50% of the heat contained in the gas should step aside for a smudge industry utilizing none whatsoever.

One George C. Lewis (pp. 101-103, Trans.), deposes chiefly respecting the making of carbon black from artificial gas, and concludes it to be commercially impracticable on account of cost. He also seeks to point out a difference between the "element carbon and the commercial product,—carbon black." He states: "Carbon black is carbon in a unique form." In other words, according to this affiant,

carbon black is the amount of carbon recovered "by combustion and impinging of the flame on a metallic surface," in which process it is stated, that "a large part of the element carbon is necessarily consumed or converted into carbon monoxide, just as in the ordinary burning of any fuel."

F. F. Curtze, the Vice President of both complainant corporations, files still another affidavit (pp. 113-114, Trans.) to the effect that he has been connected with a great many carbon black companies for thirty years, and that in some localities such enterprises have operated for a long time and that dimunition in pressure does not prove the exhaustion of the field. That when particular wells have become exhausted the loss may be made good by the drilling of new wells.

There were also filed by the complainant below, we presume for good measure, for want of ability to ascribe any other reason, nine other affidavits practically identical, some of them subscribed by many persons (pp. 104-113, Trans.) to the general effect that the officers of the complainant companies are good citizens; that the carbon industry is more profitable to the owners than if the gas were sold for fuel purposes, and some of the affiants (p. 108, also p. 112, Trans.) "do not consider the carbon business an economic waste."

We have now reviewed, by way of recital, the entire record in this cause—much of it admittedly irrellevant and immaterial to the question involved, namely, as to the validity of the exercise of the police power of the State by the enactment of the act in question.

The order granting the interlocutory injunction,

found (pp. 85-86, Trans.) wholly fails to find any facts whatsoever, either general or special. It also wholly fails to announce any conclusions at law. It merely "sustains the said application of the plaintiffs for an interlocutory injunction as prayed for in the bill of complaint," and the cause is in this court on direct appeal upon the following

ASSIGNMENT OF ERRORS (pp. 117-120, Trans.).

1. That said Court erred in granting the application of the complainants herein for an interlocutory injunction, and erred in entering an order granting and allowing such injunction.

2. That the Court erred in finding and holding the act of the legislature of the State of Wyoming set forth in the complaint herein, to be unconstitutional and void.

3. That the Court erred in failing and refusing to find and to hold said act of the legislature of the State of Wyoming a competent and valid exercise of the police power of the State.

4. That the Court erred in failing and refusing to find and to hold that the use of natural gas for the manufacture of carbon black alone is a wasteful use thereof.

5. That the Court erred in failing and refusing to find and to hold that said act of the State of Wyoming, in effect, merely prescribes the right of paramount or preferential use of natural gas for domestic and industrial purposes within the specified radius.

6. That the Court erred in failing and refusing to find and to hold the said act to be a reasonable

and valid exercise of the police power of the State and of the legislative discretion to regulate the use and sale of natural gas within a reasonable radius of cities and towns.

7. That the Court erred in its failure and refusal to find and to hold the said statute to be a true measure of conservation.

8. That the Court erred in failing and refusing to dismiss the bill of complaint of the complainants herein, for want of equity.

9. That the Court erred in failing and refusing to find and to hold that there are and were reasonable grounds for the enactment of the statute in question, and erred in its refusal to sustain the said legislation.

10. That the Court erred in its refusal to receive in evidence articles of standard authors upon the subject of the manufacture of carbon black, particularly the treatment thereof in that certain publication known as the "Hand Book of Natural Gas, published by the Metric Metal Works of Erie, Pennsylvania, in the year 1915, where it is said, page 485 thereof:

> "CARBON BLACK—The manufacture of carbon black from natural gas has become an extensive industry through the gas fields of West Virginia. Invariably the factories are located in gas fields in remote sections and away from any thickly settled districts or cities. While the use of natural gas for this purpose has been criticized on account of the small financial return per thousand cu. ft. of gas, consideration must

be given to the fact that if the same gas were piped to a market and a larger gross income received the actual profit would not be much different from that obtained from making carbon black.

"It takes about fifteen hundred cubic feet of gas to make one pound of carbon black, and the factories usually operate twenty-four hours a day.

"Generally a carbon black factory consists of a row of low, sheet iron buildings in which are long rows of troughs. Under these troughs the gas is burned through common jet burners, the combustion taking place with an insufficient supply of air, resulting in a heavy deposit of unconsumed carbon, or soot, on the under side of the troughs. This soot, or carbon black, is then scraped off and packed in twelve-and-one-half pound bags, which in turn are barreled for shipment.

"In this process no use is made of the heat energy of the gas, other than that required to separate the carbon from the hydrogen and other constituents, and it is therefore very wasteful."

11. That the Court erred in its refusal to receive in evidence the several public bulletins of issue by the Government of the United States and of the Department of Interior and of the Smithsonian Institute with relation to the subject of carbon black and the use of natural gas for the manufacture thereof, and erred in its refusal to receive in evi-

dence the following: Bulletin 102, Part 7, Smithsonian Institution, entitled "Natural Gas: its production, service and conservation," by Samuel S. Wyer of Columbus, Ohio, Washington Government Printing Office, 1918, at pages 51 and 52, where it is said:

"WASTE AND CONSERVATION OF NATURAL GAS.

"Definition of Conservation.

"True conservation is not hoarding, but the wise use of natural resources, and it implies not merely the preserving in unimpaired efficiency, but also a wise and equitable exhaustion with a maximum efficiency and a minimum waste. The heart of the natural gas conservation problem is the conflict between the present and the future. The individual land owner is interested primarily only in immediate present personal returns. That is, he is thoughtless and indifferent with respect to the future. The public—at least the 2,000,000 domestic natural gas consumers and the 10,000,000 people dependent on natural gas for their cooking, heating and lighting purposes—are interested in conserving the supply and bringing about a slow, wise and economical exhaustion so as to insure continuity of service for the future.

"Conservation, therefore, demands intensive rather than extensive use, takes cognizance of equitable distribution, aims to bring about social justice, and means the

greatest good to the greatest number—and that for the longest time. Of all the pieces of extravagance of which the American people have been guilty, perhaps their reckless and wasteful use of natural gas is the most striking—not the most important, but the most striking. This product severely limited in quantity, which can last only a few years at most, has been handled by us as if it were illimitable.

"In reference to natural gas the great and pressing necessity is to stop its appalling waste by enacting and enforcing proper legislation. This ideal fuel should be used with the severest economy in order to prolong its life, which will be brief at best."

and at page 55 of said Bulletin 102, where it is said:

"Carbon black:—

"This is a form of improper use, rather than absolute waste. The carbon black industry in West Virginia uses 50 per cent more gas than is furnished to all of the domestic natural gas consumers in that State."

and at pages 59 and 60 of said Bulletin 102, where it is said:

"Definition of Carbon black.

"In American trade the term 'Lamp black' is usually understood to be a soot deposit by the smudge process and made from oil, rosin, or some other solid or liquid

raw material, whereas 'Carbon Black' is the term applied to a black deposited by actual contact of a flame upon a metallic surface.

"Waste in Carbon black manufacture.

"Carbon black is now made by the wasteful process of incomplete combustion of natural gas. That is, the gas is simply burned in the open and the flame impinging against a metal plate makes the black deposit known as carbon black. From one and one-eighth to one and one-half pound of carbon black are made to each M. cubic feet of gas burned. The only product obtained is the carbon black, and this utilizes only a very small percentage of the total carbon content of the gas.

"The total annual quantity of natural gas used for carbon black manufactured is more than 26,000,000 M. cubic feet. This wastes about ten times as much gas as was used by the City of Louisville, or the equivalent of one-eighth of the domestic natural gas consumption in the United States.

"Doctor J. B. Garner, of the Mellon Institute of Industrial Research, Pittsburgh, Pennsylvania, has demonstrated that with correctly designed appliance the yield of carbon black can be made three times as high as that usually obtained by the wasteful process of incomplete combustion, and in addition thereto save a useable commercial gas."

BRIEF AND ARGUMENT.

It will be perceived that with the exception of Assignments 10 and 11 supra, the others, perhaps, but raise a single question for the determination of the Court, and that question is as to whether the statute in controversy is a reasonable and valid exercise of the police power of the State and of the legislative discretion to regulate the use and sale of natural gas—a natural resource—within a reasonable radius of cities or industrial plants.

If it be not such an exercise of the police power, or if it be a subject matter incompetent for the legislature to assume to regulate, the act is void. Otherwise, it is valid and must be sustained.

The Act Analyzed.

It is neither complicated nor ambiguous. Its title is "Conservation of Natural Gas," and its preamble recites it to be for the "protection and conservation of the supply of natural gas of the State of Wyoming." Section 1 of the enactment provides,

> "The use, consumption or burning of natural gas * * * for the products where such natural gas is burned, consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes, is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas, well or source of supply is located within ten miles of any incorporated town or industrial plant."

At the outside, let the premise be recognized, that the use of natural gas for carbon black manufacture is a departure from all other known commercial uses, in that it is a use that is neither for light nor yet for heat nor yet again for fuel, and such is the state of facts the Legislature had before it. The gas, when consumed for carbon is simply destroyed without meeting or fulfilling any other purpose or function. It is, we have seen, mere combustion for a resultant smudge. This use, the statute assumes to characterize as wasteful and extravagant, and presumably as men go, apart from those possessing financial or other interest, if the matter were to become a subject of debate, there would we think, scarcely be two opinions on the subject, and this, irrespective of the value of the smudge as an ingredient of printers' ink or other commodities. We shall not, however, enlarge upon this phase of the discussion. It is mentioned merely to show that a matter in which at least many persons would in all likelihood find agreement can scarcely be assailed as sheer and unwarranted assumption on the part of a Legislature.

We shall have later occasion to observe that if there are any reasonable grounds upon which legislative interference may rest, then such action is not subject to inquisitions of propriety.

The act does not prohibit all use of natural gas for carbon manufacture. It only restricts the area from towns and industrial plants for which gas may be withdrawn for such purpose. It does not even restrict the area of the gas supply for carbon manufacture if the heat is also utilized for other manufacturing purposes or domestic purposes.

In another aspect, the act may be said to merely give a paramount or preferential right to the use of gas for manufacturing or domestic purposes within the designated area of ten miles, as against a use that is for neither of those purposes, and this, with relation to a subject matter that is indisputably a natural resource, a fleeting and evenascent substance, incapable of being replaced or restored when once withdrawn from the earth.

This regulative statute is assailed as being in contravention to the Fourteenth Amendment of the Federal Constitution, as well as being violative of Section 10, Article I, of that instrument. In short, it is objected to on all and singular the grounds that have proverbially been raised as against practically every police measure when first enacted by any state with relation to a new subject matter, whether with respect to bill boards, lot lines, height of buildings, livery stables, slaughter houses, liquor traffic, laundries, brick kilns, hours of service, or any other business or industry coming in for regulation.

Unless the act is defensible as a reasonable exercise of police power, it is conceded to possess no validity, and this leads to a consideration of

THE GENERAL PRINCIPLES APPLICABLE.

It is stated in Gunding's Case, 177 U. S. 183; 20 Sup. Ct 633; 44 Law Ed. 725, that regulations of lawful trade or business are of very frequent occurrence, and that "what such regulations shall be, and to what particular trade, business or occupation they shall apply, are questions for the State to determine, and their determination comes within the proper exercise of the police power of the State."

According to Cooley, Constitutional Law (3rd Ed.) 250, the police power "is a most comprehensive branch of sovereignty, extending as it does, to every person, every public and private right, every thing in the nature of property, every relation in the State, in society and in private life."

Further defining this power and the scope of its exercise, we refer, without comment, out of the very numerous adjudications, to the following:

> "This power is and must be, from its very nature incapable of any very exact definitions or limitations. Upon it depends the security of social order, the life and health of the citizen, the comfort of an existence in a thickly populated community, the enjoyment of private and social life, and the beneficial use of property."
>
> Slaughter House Cases, 83 U. S. 16.

> "It extends to the protection of the lives, limbs, health, comfort and quiet of all persons and the protection of all property within the State, and persons and property are subjected to all kinds of restraints and burdens in order to secure the general comfort, health and prosperity of the State. Of the perfect right of the legislature to do this, no question ever was, or upon acknowledged general principles, ever can be, made so far as natural persons are concerned."
>
> Thorpe v. Rutland R. Co., 27 Vt. 149.

> "It is the power by which the health,

good order, peace and general welfare of the community are promoted."

Webber v. Virginia, 103 U. S. 348.

"The states have full power to regulate within their limits, matters of internal police, including in that general designation, whatever will promote the peace, comfort, convenience and prosperity of their people."

Escanoba, etc., Co. v. Chicago, 107 U. S. 683.

"The police power of a State extends to all matters which concern its internal regulation. It embraces those which affect the lives, limits, health, comfort and welfare of all in their persons and their property. It subjects both persons and property to those restraints and burdens which are necessary in order that the general comfort and welfare may be secured. It prescribes the modes in which it is reasonable that each shall use and enjoy his own property in order that others may be guarded in the reasonable use and enjoyment of theirs, and thus prevents a conflict of rights by determining what uses and enjoyments by each are consistent with those to which others are entitled."

Cooley, Constitutional Lim., Ch. 16.
Commonwealth v. Barse, 132 Mass. 542.

"The judiciary can only arrest the execution of a statute when it conflicts with the constitution. It cannot run a race of

opinions upon points of right, reason and expediency with the law making power."

Cooley, Const. Limit., 201.

And it was said in Barbier v. Connolly, 113 U. S. 27, that it is within the police power "to legislate so as to increase the industries of the State, develop its resources and add to its wealth and prosperity."

The power of the State over its police regulations is supreme.

Slaughter House Cases, 83 U. S. 16.

State legislation under the police power infringes the constitutional guaranty of protection in liberty and property only when it is extended to subjects not within the scope and purview, as that power was defined and understood when the constitution was adopted.

People v. Budd, 5 L. R. A. 559; 11 7 N. Y. 1

The police power of the States, in its relation to the Federal constitution, is often called one of the reserve powers of the States, under Article 10 of the Federal Constitution, which provides that the powers not delegated to the United States by the Constitution, nor prohibited to it by the States, are reserved to the States respectively.

Western Union Tel. Co. v. Pendleton, 122 U. S. 347.

The conflict between the legislative act and

some specific provisions of the fundamental law must, in general, be clearly apparent, or the act will not be deemed unconstitutional. That a statute may, in the opinion of the Court, be against the spirit of the Constitution or against the policy of the government, is not sufficient to warrant the Court in declaring it unconstitutional.

Wadsworth v. U. P. R. Co., 18 Colo. 600.

That a law is "oppressive and unjust" does not render it unconstitutional.

Knoxville v. Bird, 12 Lea (Tenn.) 126; 46 Am. Rep. 326.

It is only when a case is presented which shows clearly that a statute, when fairly and reasonably construed, is brought in conflict with some provision of the Constitution, that this Court is justified in pronouncing the law invalid.

People v. Rosenberg, 138 N. Y. 410.
1 Dillon Municipal Corp. 3rd Ed. Sec. 141.

> "Every citizen holds his property subject to the proper exercise of the police power, either by the State legislature directly, or by public corporations to which the legislature may delegate it. Laws and ordinances relating to the comfort, health, convenience, good order and general welfare of the inhabitants are comprehensively styled 'police laws or regulations'; and it is well settled that laws and regulations of

this character, though they may disturb the enjoyment of individual rights, are not unconstitutional, though no provision is made for compensation for such disturbances. They do not appropriate private property for public use, but simply regulate its use and enjoyment by the owner. If he suffers injury it is either *damnum absque injuria*, or in the theory of the law, he is compensated for it by sharing in the general benefits which the regulations are intended and calculated to secure. The citizen owns his property absolutely, it is true; it cannot be taken from him for any private use whatever without his consent, nor for any public use without compensation. Still, he owns it subject to this restriction, namely, that it must be so used as not to injure others, and that the sovereign authority may, by police regulations, so direct the use of it that it shall not prove pernicious to his neighbors or the citizens generally. These regulations rest upon the maxim, *salus populi suprema lex est*."

Eubank v. Richmond, 226 U. S. 137, p. 142:

"Whether it is a valid exercise of the police power is the question in the case, and that power we have defined, as far as it is capable of being defined by general words, a number of times. It is not susceptible of circumstantial precision. It extends, we have said, not only to regula-

tions which promote the public health, morals and safety, but to those which promote the public convenience or the general prosperity. C. B. & Q. R. v. Commissioners, 200 U. S. 561. And further, 'It is the most essential of powers, at times the most insistent, and always one of the least limitable of the powers of Government.' 214 U. S. 138, 149. But necessarily it has its limits and must stop when it encounters the prohibitions of the constitution. A clash will not, however, be lightly inferred. Governmental power must be flexible and adaptive. Exigencies arise, or even conditions less peremptory which may call for or suggest legislation, and it may be a struggle in judgment to decide whether it must yield to the higher considerations expressed and determined by the provisions of the constitution. The point where particular interests or principles balance cannot be determined by any general formula in advance. But in all these cases there is the constant admonition both in their rule and examples, that when a statute is assailed as offending against the higher guaranties of the constitution, it must clearly do so to justify the courts in declaring it invalid."

Said in Barrett v. Indiana, 229 U. S. 26:

"That the legislatures of the States may, in the exercise of the police power, regulate a lawful business, is too well settled to require more than a reference to some of the cases in this court in which that

right has been sustained as against objections under the 14th amendment."

Gundling v. Chicago, 177 U. S. 183;
Jacobson v. Mass., 197 U. S. 11;
McLean v. Arkansas, 211 U. S. 539;
Williams v. Arkansas, 217 U. S. 79;
Watson v. Maryland, 218 U. S. 173;
Schmidinger v. Chicago, 226 U. S. 578.

To summarize the doctrines of the foregoing authorities and applying them to the case at bar, we have as an incontestable hypothesis, that the carbon industry, however lawful a business, is subject in the exercise of police power, to at least some character of regulation if the State sees fit to exercise it.

When a measure is regulative, and that here involved is only that and nothing more, its wisdom or policy is free from judicial interference, and this, irrespective of any alleged harshness, injustice or oppressiveness of the act, and this is true even though the act discriminate against any class, for which we refer to the following:

Minneapolis Etc. R. Co. v. Beckwith, 129 U. S. 26.

Syll.:

"The 14th Amendment to the Constitution does not limit the subjects in relation to which the police power of the State may be exercised for the protection of its citizens."

Page 29:

"Equality of protection implies not

merely equal accessibility to the Courts for the prevention or redress of wrongs and the enforcement of rights, but equal exemptions with others in like condition, from charges and liabilities of every kind. But the clause (14th Amendment) does not limit, nor was it designed to limit, the subjects upon which the police power of the State may be exerted. The State can now, as before, prescribe regulations for the health, good order and safety of society, and adopt such measures as will advance its interests and prosperity. And to accomplish this end, special legislation must be resorted to in numerous cases, providing against accidents, disease and danger in the varied forms in which they may come. The nature and extent of such legislation will necessarily depend upon the judgment of the legislature as to the security needed by society. • • • The concluding clause of the first section of the 14th amendment simply requires that such legislation shall treat alike all persons brought under subjection to it. The equal protection of the law is afforded when this is accomplished. Such has been the ruling of this Court in numerous instances where that clause has been invoked against legislation supposed to be in conflict with it. Thus in Barbier v. Connolly, 113 U. S. 27, it was objected that a municipal ordinance of San Francisco prohibiting washing and ironing in public laundries within certain designated limits of the city between the

hours of 10 at night and 6 in the morning was in conflict with that amendment, in that it discriminated between laborers engaged in the laundry business and those engaged in other kinds of business, and between laborers employed within the designated limits and those without them. But the Court held that the provision was merely a police regulation • • •; that restrictions of this kind, though necessarily special in character, do not furnish ground of complaint if they operate alike upon all persons or property under the same circumstances or conditions. 'Class legislation,' said the Court, 'discriminating against some and favoring others, is prohibited, but legislation which, in carrying out a public purpose, is limited in its application, if within the sphere of its operation, it affects alike all persons similarly situated is not within the amendment.'"

Missouri Pac. R. Co. v. Humes, 115 U. S. 520.

"If the laws enacted by a State be within the legitimate sphere of legislative power, and their enforcement be attended with the observance of those general rules which our system of jurisprudence prescribes for the security of private rights, the harshness, injustice and oppressive character of such laws will not invalidate them as affecting life, liberty or property without due process of law." • • "The

case of Kemmler, 136 U. S. 436; Kaukauna Co. v. Green Bay Canal, 142 U. S. 254; Hollinger v Davis. 146 U. S. 324; Yester v. Harbor Com'rs., 146 U. S. 626.

Page 523:

"There is no evasion of the rule of equality, where all companies are subjected to the same duties and liabilities under similar circumstances."

Dent v. West Virginia, 129 U. S. 124.

"Legislation must necessarily vary with the different objects upon which it is designed to operate. It is sufficient for the purpose of this case to say that legislation is not open to the charge of depriving one of his rights without due process of law, if it be general in its operation upon the subjects to which it relates, and is enforceable in the usual modes established in the administration of government with respect to kindred matters; that is, by process or proceedings adapted to the nature of the case."

M. K. & T. Ry. Co. v. May, 194 U. S. 269.

Page 269:

"It is admitted that legislation may be directed against a class when any fair ground for the discrimination exists. • • • It is obvious that the legislature is the only judge of the policy of a proposed discrimination. • • • When a State legislature has declared that in its opinion,

policy requires a certain measure, its action should not be disturbed by the courts under the 14th Amendment unless they can see clearly that there is no fair reason for the law that would not require with equal force its extension to others whom it leaves untouched."

To the same effect, see Armour & Co. v. No. Dakota, 240 U. S. 516.

McLean v. Arkansas, 211 U. S. 539.

Syll.:

"The legislature of a State is primarily the judge of the necessity of exercising the police power, and courts will only interfere in case the act exceeds legislative authority; the fact that the court doubts its wisdom or propriety affords no ground for declaring a State law unconstitutional or invalid. In the light of conditions surrounding their enactment, this court will not hold that the legislative acts requiring coal to be measured for payment of miners' wages before screening, are not reasonable police regulations and within the police power of the State; and so held that the Arkansas Act so providing is not unconstitutional under the due process or the equal protection clauses of the 14th Amendment.

"It is not an unreasonable classification to divide coal mines into those where less than ten miners are employed and those where more than that number are employed and a State regulation is not unconstitu-

tional under the equal protection clause of the 14th Amendment because only applicable to mines where more than ten miners are employed."

See also Budd v. New York, 143 U. S. 517.

Chicago, B. & Quincy R. R. Co. v. McGuire, 219 U. S. 568.

Held:

"In addition to upholding the power of the State to require reasonable maximum charges for public service (*Munn. v. Illinois*, 94 U. S. 113; *C., B. & Q. R. R. Co. v. Iowa*, 94 U. S. 155; *Railroad Commission Cases*, 116 U. S. 307; *Willcox v. Consolidated Gas Co.*, 212 U. S. 19) and to prescribe the hours of labor for those employed by the State or its municipalities (*Atkin v. Kansas*, 191 U. S. 207) this court has sustained the validity of State legislation in prohibiting the manufacture and sale of intoxicating liquors within the state (*Magler v. Kansas*, 123 U. S. 623; *Crowley v. Christensen, Supra*; in limiting employment in underground mines or workings, and in smelters and other institutions for the reduction or refining of ores or metals, to eight hours a day excepting in cases of emergency (*Holden v. Hardy*, 169 U. S. 366); in prohibiting the sale of cigarettes without license (*Gundling v. Chicago*, 177 U. S. 183); in requiring the redemption in cash of store orders or other evidences of indebtedness issued in payment of wages (*Knoxville Iron Co. v. Harbison*, 183 U. S. 13); in prohibiting contracts for options to sell or buy grain or other commodity at a future time (*Booth v. Illinois*, 184 U. S. 425); in prohibiting the employment of women in

laundries more than ten hours a day (*Muller v. Oregon*, 208 U. S. 412); and in making it unlawful to contract to pay miners employed at quantity rates upon the basis of screened coal, instead of the weight of the coal as originally produced in the mine (*McLean v. Arkansas*, 211 U. S. 539).

The principle involved in these decisions is that where the legislative action is arbitrary and has no reasonable relation to a purpose which it is competent for government to effect, the legislature transends the limits of its power in interfering with liberty of contract; but where there is reasonable relation to an object within the governmental authority, the exercise of the legislative discretion is not subject to judicial review. The scope of judicial inquiry in deciding the question of *power* is not to be confused with the scope of legislative considerations in dealing with the matter of *policy*. Whether the enactment is wise or unwise, whether it is based on sound, economic theory, whether it is the best means to achieve the desired result, whether, in short, the legislative discretion within its prescribed limits should be exercised in a particular manner, are matters for the judgment of the legislature, and the earnest conflict of serious opinion does not suffice to bring them within the range of judicial cognizance.

The principle was thus stated in McLean v. Arkansas, 211 U. S. 547, 548; "The legislature, being familiar with local conditions is, primarily, the judge of the necessity of such enactments. The mere fact that a court may differ with a legislature in its views of public policy, or that judges may hold views inconsistent with the propriety of the legislature in

question, affords no ground for judicial interference, unless the act in question is unmistakably and palpably in excess of legislative power. (Cases cited) . . . If there existed a condition of affairs concerning which the legislature of the State, exercising its conceded right to enact laws for the protection of the health, safety or welfare of the people, might pass the law, it must be sustained, if such action was arbitrary interference with the right to contract or carry on business, and having no just relation to the protection of the public within the scope of legislative power, the act must fail."

Hayes v. Missouri, 120 U. S. 71.

> "The 14th Amendment to the Constitution of the United States does not prohibit legislation which is limited either in the objects to which it is directed or by the territory within which it is to operate. It merely requires that all persons subjected to such legislation shall be treated alike, under like circumstances and conditions, both in the privileges conferred and in the liabilities imposed."

With questions of expediency, wisdom, fairness and other like questions, the courts have nothing to do; unless the Act exceeds all bounds of reason, the judgment of the legislature is final.

Hunter v. Pittsburgh, 207 U. S. 161, 176; Booth v. Illinois, 184 U. S. 425, 429; Welch v. Swasey, 214 U. S. 91, 105; Forsythe v. Hammond, 166 U. S. 506, 518; Williams v. Eggleston, 170 U. S. 304; Kelly v. Pittsburgh, 104 U. S. 78; Wilson v. North

Carolina, 169 U. S. 586, 593; Covington v. Kentucky, 173 U. S. 731.

Validity Presumed.

We next find it to be a rule without seeming qualification, that in passing upon attacks upon statutes enacted in exercise of the police power, every presumption of validity finds indulgence. To such effect we cite the following cases:

Holden v. Hardy, 169 U. S. 366.

(Hours of Service Act of Utah for Miners, etc.)

p. 397:

> "Though reasonable doubts may exist as to the power of the legislature to pass a law, or as to whether the law is calculated or adapted to promote the health, safety or comfort of the people, or to secure good order, or promote the general welfare, we must resolve them in favor of the right of that department of government. * * * * The question in each particular case is whether the legislature has adopted the statute in exercise of a reasonable discretion, or whether its action be a mere excuse for an unjust discrimination, or the oppression or spoliation of a particular class."

Hanley v. Sims, 94 N. E. 402 (Indiana).

> "We must indulge all reasonable presumptions in favor of the validity of the act challenged by appellant, and will not presume that the legislative department acted in bad faith or in any manner endeavored

> to evade the Constitution in the enactment thereof. We must presume that the action of the legislature was legitimate until the contrary is made to appear. If the exercise of the discretion of that body is within the limits of its constitutional authority, we can no more interfere with its discretion than it can interfere with or encroach on the province or power of this court, for it is well settled that its discretion is not subject to the control of the judiciary nor within the judicial surveillance. Jamieson v. Indiana, etc., Oil Co., 128 Ind. 555; 28 N. E. 76; 12 L. R. A. 652."

And in the case of Lindsley v. Natural Carbonic Gas Co., 220 U. S. 62, to be hereinafter more at length referred to, it was held:

> "This court will assume the existence at the time the statute was enacted, of any state of facts that can reasonably be conceived and which will support a classification in a state statute attacked as denying equal protection of the law."

The Police Power Not Subservient to Contracts or Property Rights.

Authorities to this effect are very numerous. We content ourselves by calling attention to a few of the more illustrative adjudications.

The case of Mugler v. Kansas, 123 U. S. 623, entirely disposes of all and singular the contentions of complainants below to the effect (Par. 12th Bill,

p. 8 Trans.) that the law here in controversy deprives them of property without due process; that it denies them the equal protection of the laws, and that it impairs the obligation of their several contracts.

Speaking with reference to the same contentions in the Mugler case, where the law not merely restricted but absolutely prohibited the use of property for a given purpose, namely the manufacture of spirits, this Court said:

> "It is contended, although the State, in the exercise of its police powers, may lawfully prohibit the manufacture and sale, within its limits, of intoxicating liquors to be used as a beverage, legislation having that object in view cannot be enforced against those who, at the time, happen to own property the chief value of which consists in its fitness for such manufacturing purposes unless compensation is first made for the diminution in the value of their property resulting from such prohibitory enactments.
>
> "This interpretation of the 14th Amendment is inadmissible. It cannot be supposed that the states intended, by adopting that amendment, to impose restrictions upon the exercise of their powers for the protection of the safety, health or morals of the community. In respect to contracts, the obligations of which are protected against hostile State legislation, this Court, in Butchers' Union Co. v. Crescent City Co., 111 U. S. 746, 751, said that the State

could not, by any contract, limit the exercise of her power to the prejudice of the public health and the public morals. So in Stone v. Mississippi, 101 U. S. 814, where the constitution was invoked against the repeal by the State of a charter granted to a private corporation, and for which that corporation paid to the State a valuable consideration in money, the Court said: 'No legislature can bargain away the public health or the public morals. The people themselves cannot do it, much less their servants. Government is organized with a view to their preservation and cannot divest itself of the power to provide for them,"

Again, in New Orleans Gas Co. v. Louisiana Light Co., 115 U. S. 650, 672:

"The constitutional prohibition upon State laws impairing the obligation of contracts does not restrict the power of the State to protect the public health, the public morals or the public safety, as the one or the other may be involved in the execution of such contracts. Rights and privileges arising from contracts with a State are subject to regulations for the protection of the public health, the public morals and the public safety, in the same sense and to the same extent as are all contracts and all property, whether owned by natural persons or corporations.

"The principle that no person shall be

deprived of life, liberty or property without due process of law was embodied, in substance, in the constitutions of nearly all, if not all, of the States at the time of the adoption of the 14th Amendment; and it has never been regarded as incompatible with the principle, equally vital, because essential to the peace and safety of society, that all property in this country is held under the implied obligation that the owner's use of it shall not be injurious to the community. • • • Referring to the numerous decisions of this Court guarding the power of Congress to regulate commerce against encroachment, under the guise of state regulations, established for the purpose and with the effect of destroying or impairing rights secured by the constitution, it was further said: 'It has, nevertheless, with marked distinction and uniformity, recognized the necessity, growing out of the fundamental conditions of civil society, of upholding State police regulations which were enacted in good faith, and had appropriate and direct connection with that protection to life, health and property which each State owes to her citizens.'" • • •

Said in Fertilizing Co. v. Hyde Park, 97 U. S. 659, 667:

"'The police power belonged to the States when the Federal Constitution was adopted. They did not surrender it, and they all have it now. *It extends to the en-*

tire property and business within their local jurisdiction. Both are subject to it in all proper cases. It rests upon the fundamental principle that everyone shall so use his own as not to wrong and injure another.'"

P. 668:

"A prohibition simply upon the use of property for purposes that are declared, by valid legislation to be injurious to the health, morals or safety of the community cannot in any just sense be deemed a taking or an appropriation of property for the public benefit. Such legislation does not disturb the owner in the control or use of his property for lawful purposes, nor restrict his right to dispose of it, but is only a declaration by the State that its use by anyone for certain forbidden purposes is prejudicial to the public interests. Nor can legislation of that character come within the 14th Amendment in any case, *unless it is apparent* that its *real object* is not to protect the community, or to promote the general well being, but under the guise of police regulation, to deprive the owner of his liberty and property without due process of law. The power which the States have of prohibiting such use by individuals of their property as will be prejudicial to the health, the morals or the safety of the public, is not—and, consistently with the existence and safety of organized society, cannot be—burdened with the condition that the State must compensate such individual

owners for pecuniary losses they may sustain by reason of their not being permitted, by a noxious use of their property, to inflict injury upon the community. • • •

"It is true that when the defendants in these cases purchased or erected their breweries the laws of the State did not forbid the manufacture of intoxicating liquors. But the State did not thereby give assurance, or come under an obligation, that its legislation upon that subject would remain unchanged. Indeed, as was said in Stone v. Mississippi, above cited, the supervision of the public health and the public morals is a governmental power, 'continuing in its nature,' and 'to be dealt with as the special exigencies of the moment may require, and that for this purpose the *largest legislative discretion is allowed*, and the discretion cannot be parted with any more than the power itself.' So in Beer Co. v. Mass., 97 U. S. 32: 'If the public safety or the public morals require the discontinuance of any manufacture or traffic, the hand of the legislature cannot be stayed from providing for its discontinuance by any incidental inconvenience which individuals or corporations may suffer.'"

And to the same effect, amongst the many cases on the subject, we cite C. B. & Q. Ry. Co. v. Drainage Commissioners, 200 U. S. 562, it being there stated (p. 594):

"It has always been held that the leg-

islature may make police regulations, although they may interfere with the full enjoyment of private property and though no compensation is given."

And in Hudson Water Co. v. McCarter, 209 U. S. 357, this Court declared:

> "One whose rights, such as they are, are subject to State restrictions, cannot remove them from the power of the State by making a contract about them. The contract will carry with it the infirmity of the subject matter. Knoxville Water Co. v. Knoxville, 189 N. S. 434; Mongault v. Springs, 199 U. S. 473; • • • a man cannot acquire a right to property by his desire to use it in commerce among the States. Neither can he enlarge his otherwise limited and qualified right to the same end."

ILLUSTRATIVE CASES.

We beg to present, as briefly as may be, a few of the more illustrative instances of exercise of the police power upon businesses and occupations, and against which exercise there was raised in each instance, each and every of the time-worn objections advanced by the complainants below in the case at bar.

In the case of Bacon v. Walker, 204 U. S. 312, an Idaho statute prohibiting, not merely limiting, the herding and grazing of sheep within two miles of land or possessory claims of persons other than the sheep owners was sustained as against the ob-

jection of deprivation of property without due process, and the further objection that it was arbitrary and unreasonably discriminatory, and that it denied the equal protection of the laws, this Court then repeating that the promotion of the general prosperity and the greatest welfare of the State were objects within the police function and that (p. 315) "the laws and policy of a State may be framed and shaped to suit its conditions of climate and soil," citing Ohio Oil Co. v. Indiana, 177 U. S. 190, and further held (p. 317): "We do not enter therefore into the discussion whether the sheep industry is legitimate and not offensive. The selection of some limit is a legislative power, and it is only against the abuse of the power, if at all, that the Courts may interpose. But the abuse must be shown. It is not shown by quoting the provision which expresses the limit. The mere distance expressed shows nothing. It does not display the necessities of a settler upon the public lands. It does not display what protection is needed, not from one sheep or a few sheep, but from large flocks of sheep, or the relation of the sheep industry to other industries. These may be the considerations that induced the statute, and we cannot pronounce them insufficient on surmise or on the barren letter of the statute."

It is accordingly submitted in the case at bar that the ten-mile limit provided, from which gas may not be drawn for carbon manufacture (unless the heat be utilized) is not subject, *per se*, to criticism, particularly not in a State said to possess magnificent distances. "The selection of some limit is a legislative power."

Hudson Water Co. v. McCarter, 209 U. S. 357.

This case is in answer to the contentions of complainants below, that because there is no present "shortage or indications of shortage in the supply of natural gas in said region or in the State of Wyoming" (p. 9 Trans.) (and which is vigorously contested) that an act of conservation is unnecessary and improper. In other words, complainants lead themselves into the inadmissable contention that there should be no conservation until that which is sought to be conserved no longer exists.

Speaking of "Natural advantages" this court, in the case last above mentioned, said:

> "We are of opinion further that the constitutional power of the State to insist that its natural advantages shall remain unimpaired by its citizens is not dependent on any nice estimate of the extent of present use or speculation as to future needs. The legal conception of the necessary is apt to be confined to somewhat rudimentary wants, and there are benefits from a great river that might escape a lawyer's view. But the State is not required to submit even to an aesthetic analysis. Any analysis may be inadequate. It finds itself to be in possession of what all admit to be a great public good, and what it has it may keep and give no one a reason for its will. The defense under the 14th amendment is disposed of by what we have said."

And as negativing all of the contentions of complainants below, we refer to the case of

Hadacheck v. Sebastian, 239 U. S. 394.

The police power is there characterized as "one of the least limitable"—in fact, the imperative necessity for its existence precludes any limitation upon it when not "arbitrarily exercised." And the fact that vested interests have attached cannot be asserted against its proper exercise. This case involved the location of a brickyard, and its operation, within specified limits of the City of Los Angeles, California, was by ordinance not merely regulated, but absolutely prohibited, and it was held that even though this industry was not a nuisance *per se*, yet it must yield to a discretionary exercise of police power, and this quite irrespective of either vested or contractual rights, or however necessary, useful and lawful the occupation. Except for carbon black, complainants inform us, printers will be unable to print and hence readers to read, and that therefore some especial sanctity or exemption ought to attach. Brick makers might, in exaggerated fancy, claim much more direful results. But the police power is independent of such consideration unless we wholly misapprehend every authority upon the subject.

Quite identical were the contentions in the Hadacheck case with those of the complainants here, in the case at bar. It was there also contended that a great financial outlay had long previously been made; that the premises were particularly and especially valuable for clay deposits; that the busi-

ness of brick making had its inception prior to the prohibiting ordinance; that there was one other manufacturer in the same area; that enforcement of the ordinance would entail ruination to the business; that there was no reason for the ordinance; that the business was not detrimental to the city or the people of the affected district; that no prior attempts at regulation had ever been made, and that (p. 406) "the boundaries of the district were determined for the sole and specific purpose of prohibiting and suppressing the business of petitioner and that of the other brick yard"; that the act had failed to regulate other brick yards in more populous districts of the city. It will be observed that this case possessed even more features than does the one at bar. There is, for instance, no supported charge by the Midland Carbon Company and the Occidental Oil and Gas Company that the act in question was arbitrarily directed against them for purposes of oppression; although it was their contention below, *arguendo*, that because the law "fit" them, that it was on that account necessarily invalid; that the conditions affecting them had been selected by the Legislature. Hence, that they were oppressed. In other words, it seems to have been their contention that if a law "fits" a business, it is on that account invalid. If it "fits" no one, the law is free from objection. If such a contention were tenable, there is not a law on the books that would be capable of enforcement. We digress to call attention of this Court to this argument, as complainants will probably seek to renew it here. But in the Hadacheck case, the direct charge of intended oppression was made, and attempted to be sustained, and as the Court states

(pp. 407-408), the charge was denied. In the case at bar we have the affidavit of R. C. May, who presented the act in the Legislature (p. 77 Trans.), that his sole object was to secure legislation for "the conservation of the natural resources of the State for the use and benefit of the people thereof." And this affidavit stands wholly uncontroverted, and there is no issue here of bad faith. Hence, the case at bar and the Hadacheck case differ to that extent, the difference being in favor of the validity of the law.

This Court, after a full recital of all the contentions made in the Hadacheck case, sustained the decision below, and freely admitting, as do we, that the police power canot be arbitrarily exercised, said (p. 410): "The principle is familiar, but in a given case it must plainly appear to apply."

In the case at bar, we submit that there is no more evidence, or showing, or the presence of any thing even remotely tending to show, an arbitrary or oppressive exercise of the police power, than there is evidence tending to establish the meaning of the hieroglyphics on the Pyramids of Egypt; and if there were any finding of the Court below to such effect, which there is not, it could not stand. It would be sheer and unsupported assumption, whereas this Court has in every instance said that such must "plainly appear," and that the burden is on the party assailing. In other words, we take it, there must be sharp issue made by proper allegations, and the burden discharged by at least a preponderance of evidence, not a mere showing that the complainants are affected, to their inconvenience, or even their damage, by any particular law.

And this Court adverts, in the case now under

review, to Reinman v. Little Rock, 237 U. S. 171, a livery stable case, where again was the contention made that a "necessary and lawful occupation that is not a nuisance *per se*, cannot be made so by legislative declaration," and where further alleged rights under the Fourteenth Amendment were sought to be invoked, and all were rejected as subordinate to the police power—and drawing distinctions between the Reinman Case and the Hadacheck case, this Court said (p. 411) in the Reinman case, "a particular business was prohibited which was not affixed to or dependant upon locality; it could be conducted elsewhere." We interrupt the quotation to remark that such exactly is the case at bar. Further than that, it can be conducted where it now is, if only it get its gas supply ten miles distant from a town or industrial plant. And even further than that, it can be conducted where it now is, and get its gas supply wherever it may choose, if only it utilize the heat of the fuel for other domestic or industrial purposes. In short, there is no absolute prohibition. It is only a conditional prohibition, and the analogy to the Hadacheck case is further exhibited in the statement of the Court (p. 412) * * * "There is no prohibition of the removal of the brick clay; only a prohibition within the designated locality of its manufacture into bricks." To paraphrase: "There is no prohibition of the removal of the gas; only a prohibition within a designated locality, of its manufacture into carbon black, and this prohibition is relieved upon condition."

This Court concluded its discussion of the case under review, by the observation that (p. 413): "It may be that something else than prohibition would

have satisfied the conditions. Of this, however, we have no means of determining, and besides we cannot declare invalid the exertion of a power which the city undoubtedly has because of a charge that it does not exactly accommodate the conditions, or that some other exercise would have been better or less harsh. We must accord good faith to the city, in the absence of a clear showing to the contrary, and an honest exercise of judgment upon the exigencies which adduced its action."

This language is peculiarly applicable to the situation presented in the case at bar. It was contended by the appellees that it is out of the question to "fully and actually apply" the heat of the gas destroyed by combustion in carbon manufacture, and that because of such alleged impossibility, the act so requiring is, *ipso facto*, and necessarily void.

It may be that the law in controversy does "not exactly accommodate the conditions, or that some other exercise would have been better or less harsh"; but these are matters beyond the province of judicial inquiry. It is a question of the good faith exercise of power, even though that be a mistaken exercise. It is not a question of policy. The greater includes the less, and if Wyoming has the power (which is, we submit, beyond admissable controversy) to regulate the taking of gas for carbon manufacture, it has the right to impose conditions. If the conditions, perchance, fall short of the ideal, or even the practicable, it fails to demonstrate invalidity since it was in the province of the State to prohibt the use of gas for the specified purpose, altogether free from condition. In other words, if a full exercise of the police power could not be the subject of legal complaint,

it is manifest that a lesser exercise is necessarily free from it. There is here no taking of property. There is simply a limitation in favor of the many and against the one, and a conditional limitation at that, upon its use. If the condition imposed is not apt, the restriction is none the less competent, since it was within the power of the State, unless we misapprehend all the cases, to have imposed the restriction without condition. Granting that the manufacture of carbon black from natural gas is not a nuisance *per se*, it is none the less within the police power to regulate. It is to be kept in view that consumption of gas for carbon manufacture is at least three times that of all other uses combined, with an inefficiency of approximately 96%.

The Legislature could, we submit, have declared such a business in "particular instances and in particular localities, a nuisance in fact and in law," without the saving grace of any condition whatsoever. That the Legislature of Wyoming did not go this far, although justified, wholly fails, we think, to demonstrate constitutional invalidity. If it does so demonstrate, then necessarily the milder the regulation in any given instance, the more invalid the law becomes. Such is the logic to which the contentions of complainants below reduce themselves. But under none of the authorities are legislatures to be subjected to either critical or scientific inquisition. The proclaimed purpose of the law here in controversy is to "conserve and protect" the gas supply of the State. If its provisions are reasonably calculated to subserve its proposed objects, that is as far as judicial inquiry may extend, and compliance is not a question of convenience, with the persons against

whom the law is directed. If its provisions are utterly unrelated to its preamble, then admittedly, there would be no effectuation of purpose and the law would fail. We shall have occasion later to perceive, that amongst the many public criticisms of the carbon industry, that is, criticisms made by writers on the subject of Natural Gas, it is almost uniformly condemned on account of the fact that no utilization is made of the heat expended in the gas combustion.

We next refer to the OPINION OF JUSTICES (Maine Supreme Court), 69 Atl. 627; 19 L. R. A. 425.

This is a case involving the regulation of a natural resource—the protection of the water supply—by forbidding the wanton cutting of trees on wild lands. The syllabus reflects the opinion, and reads:

> 1. "Regulation by the State of the cutting or destruction of trees growing in wild and uncultivated land, or prohibition of the wanton cutting of trees on such lands which are of equal or greater value standing than cut, for the purpose of protecting the water supply of the State, is not a taking of property for which compensation must be made under the 14th amendment of the Federal Constitution, since that amendment was not intended to interfere with the police power of the State."
>
> 2. "Regulating or prohibiting the cutting of trees on wild or uncultivated lands for the purpose of protecting the water supply of the State is not a denial of the equal protection of the laws, since the classification is based on real differences in

the nature, situation and condition of things."

Said in opinion (p. 425, 19 L. R. A.):

"Police regulations may forbid such a use and modification of private property as would prove injurious to the citizens generally. This is one of the benefits men derive from associating in communities. It may sometimes occasion an inconvenience to an individual, but he has a compensation in participating in the general advantage. Laws of this character are unquestionably within the scope of the legislative power without impairing any constitutional provision. It does not appropriate private property to public uses, but merely regulates its enjoyment."

Reference is also had to Commonwealth v. Tewksbury, 11 Met. (Mass.) 55; for the holding that:

"All property is acquired and held under the tacit condition that it shall not be so used as to injure the equal rights of others or to destroy or greatly impair the public rights and interests of the community, under the maxim of the common law *sic utere tuo et non alienam laedas.* When the injury is plain and palpable it may be a nuisance at the common law to be restrained and punished by indictment. But there are many cases where the things done in particular places, or under a particular state of facts, would be injurious, when

> under a change of circumstances the same would be quite harmless * * *. In such cases we think it is competent for the legislature to interpose, and by positive enactment, to prohibit a use of property which would be injurious to the public under particular circumstances, leaving the use of similar property unlimited where the obvious considerations of public good do not require the restraint. This is undoubtedly a high power and is to be exercised with the strictest circumspection, and with the most sacred regard to the right of private property, and only in cases amounting to an obvious public exigency. Still, we think the power exists and has been long exercised in cases more or less analagous."

So in Hodges v. Perrine, 24 Hun. 516, it was held that a court of equity would not interfere to obstruct the due execution of a penal statute forbidding the removal of sand which formed a natural barrier between the sea and a public highway, for assuming that the plaintiff had an absolute title to the beach, yet the power of the legislature to prevent the removal of the sand rested upon the familiar maxim that every owner of land must so use his property as not to injure the public interests.

The foregoing opinions are, we submit, indistinguishable in principle from the law in controversy in the case at bar. The difference rests only in the subject matter of the act, which provides a limitation only upon the use of property, as distinguished from absolute prohibition of use.

In Ex parte Elam, 6 Cal. App. 233, 91 Pac. 811, it was contended that an act passed for the prevention of the waste and flow of water from artesian wells, and prescribing penalties therefor, and also defining waste and artesian wells, was violative of the Constitution of the United States and of those sections of the State Constitution which forbid the depriving of property without due process of law. It was held, however, that since the act related to waters the right to the use of which was common to a large portion of the community and affected the general public right, and the right to legislate in regard to its use and conservation, referable to the police power of the state, the above constitutional provisions had no application. It was also contended that the statute was contrary to that part of the State Constitution forbidding the granting of special privileges or immunities, in that no provision was made as to waters pumped from subterranean sources. The Court, in coming to the conclusion that this section of the Constitution was not violated, said: "As we have before attempted to show, no surface owner possesses the right to extract the subterranean water in excess of a reasonable and beneficial use upon the land from which it is extracted. Any additional extract n is not in the exercise of a right, if, b such exercise, the rights of others are injuriously affected. Nor can an appropriator take more water than he can beneficially use. Hence, it follows that no discrimination is made between parties entitled to the exercise of a common right. Under the act in question, all may exercise their full legal right with reference to this water. As to the right to use any portion of that

which belongs to the public, legislative control is applicable; and if, as a matter of fact, public rights are abused by the improper extraction of this public water by means of pumps, it is presumable that the legislature, in the exercise of its proper functions, will, in due time, arrest such waste." It was contended that the statute was violative of that state constitutional provision forbidding the passing of local or special laws, and of the provision that all laws of a general nature shall have uniform operation; but since, as the Court said, the distinction between wells having a natural flow and those not so constituted is natural, and reasonably indicates the necessity or propriety of legislation restricting the former class, and the constitutional provision as to uniformity is satisfied when the law operates uniformly upon all persons standing in the same category, the statute was also not violative of the above two constitutional provisions.

While of course the analogy is not complete as between subterranean waters and natural gas, the latter being unlike water in that it is not generally distributed over wide areas, and hence a vastly more precious substance, yet the case last above is mentioned to show that even subterranean water, apart from the doctrine of riparian rights and that of appropriation, is held to be a proper subject on which the police power is properly exercised because the general public right is affected—not merely the rights of the several owners of the lands.

Further pertinent illustrations of the exercise of the police power are found in the following cases, to which we shall make brief reference:

Murphy v. California, 225 U. S. 628.

Here, the conduct of the lawful business of operating a billiard hall was regulated to the extent of prohibition, and the ordinance was upheld by this Court as against practically all of the constitutional objections raised by complainants below in the case at bar. Certain of the language employed by the Court is equally applicable to the case at bar:

> "The ordinance is not aimed at the game, but at the place, and where, in the exercise of the police power, the municipal authorities determine that the keeping of such resorts should be prohibited, the *Courts cannot go behind their finding* and inquire into local conditions."

And quoting from Booth v. Illinois, 184 U. S. 425, 429, this Court there said:

> "If looking at all of the exigencies that attend, or which may ordinarily attend, the pursuit of a particular calling, the State thinks that certain admitted evils cannot be successfully reached unless that calling be actually prohibited, the Courts cannot interfere unless, looking through mere forms and at the substance of the matter, they can say that the statute enacted professedly to protect the public morals, has no real or substantial relation to that object, but is a clear, unmistakable infringement secured by the fundamental law."

The above case is authority for the contention that we confidently make, that the Courts "cannot go behind the finding" of the Legislature and in-

quire into local conditions. Nor, we take it, in view of the facts of this case, the use of gas for smudge purposes, and that one of approximately 96% inefficiency—a use running twenty-four hours a day and being more than three times that of all other uses combined—can the Court go behind the legislative declaration that such use is a "wasteful and extravagant one," and because thereof is subjected to limitations. We take it for granted that it can hardly, in the absence of sheer assumption, be said that the act has no relation to its avowed objects, but is, instead, "a clear, unmistakable infringement of rights secured by the fundamental law."

As said by this Court in Holden v. Hardy, 169 U. S. 366 (p. 397):

> "Though reasonable doubts may exist as to the power of the Legislature to pass a law or as to whether the law is calculated or adapted to promote the health, safety or comfort of the people, or to secure good order or promote the general welfare, we must resolve them in favor of the right of that department of Government. • • • The question in each particular case is whether the Legislature has adopted the statute in exercise of a reasonable discretion, or whether its action be a mere excuse for an unjust discrimination or the oppression or spoliation of a particular class."

We submit that the action of the Court below in granting the application for an interlocutory in-

junction involved a repudiation on its part of the doctrines last above stated.

Lawton v. Steele, 152 U. S. 140.

This case states the doctrine thus comprehensively:

> "The State may interfere whenever the public interests demand it, and in this particular a large discretion is necessarily vested in the Legislature to determine, not only what the public interests require, but what measures are necessary for the protection of such interests. Barbier v. Connolly, 113 U. S. 27; Kidd v. Pearson, 128 U. S. 1."

We submit that the use of a fuel characterized by writers on the subject as the cheapest and best known to civilization, as we shall hereinafter have occasion to see, is, to some extent at least, a matter of "public interest." It has many times, in fact, been decided to be so. We refer to but a single case. City of La Harpe v. Elm Township Gas Etc. Co., 69 Kansas 97; 76 Pac. 448, where it is said:

> "The production and distribution of natural gas for light, fuel and power affects the people generally to such an extent that it may be regarded as a business of a public nature and is almost, if not quite, a public necessity, the control of which belongs to the State."

This quotation does not embrace within its category of "light, fuel and power" the smudge industry —a use many times as excessive as that of all other uses combined, but because of its continuous and almost unlimited use of gas, would, we contend,

"affect the people generally" to a much greater extent. Only a few States, it will be remembered, are favored by the carbon industry, and the presumption is not violent that Kansas has not yet been chosen by those in that business as a scene of operation.

Hence we take it for granted that if the control of gas for ordinary uses is a public function, it becomes all the more so for an extraordinary use. The action of the Legislature of Wyoming, in seeking to "protect and conserve" the gas supply of the State in favor of municipalities and industrial plants can scarcely be justly stigmatized as either an arbitrary or oppressive interference or the abuse of a discretion which is solely theirs.

The carbon business is, we concede, a business *sui generis*—a thing apart from all other known activities—but we fail on that account to perceive the sanctity its advocates proclaim, or that it is for that reason or any other reason immune to legislative action. It seemed to be the inference by the Court below that because this industry or business of gas combustion for its black smudge had invited legislative action, that for some reason, vague or otherwise, the law was necessarily invalid because not embracing regulations of all users of gas. Whatever may have been the considerations leading to an award of the interlocutory injunction, they were to the disregard of the many holdings of this Court on kindred subjects, particularly those to the effect that the Fourteenth Amendment "only requires the same means and methods to be applied impartially to all the constituents of a class so that the law shall operate equally and uniformly upon all persons in

similar circumstances; (Kentucky Railroad Tax Cases, 115 U. S. 321-337), and that it does not prohibit legislation which is limited either in the objects to which it is directed, or by the territory in which it is to operate. Magoun v. Ill. Trust & Savings Bank, 170 U. S. 292.

Had the Wyoming Legislature merely specified conditions affecting the Midland Carbon Company and the Occidental Oil and Gas Company, leaving to all others the right to operate at will, they would perhaps have been denied the equal protection of the law. But the Wyoming statute applies to all persons alike, whomsoever they may be, under all circumstances, whether referring to burners of gas for carbon manufacture or those supplying or selling gas for that purpose, and there is no possible inequality.

In Missouri R. Co. v. Mackey, 127 U. S. 205, this Court said (p. 209): "Nothing can be further from the fact" that special legislation is under any constitutional inhibition, and that "when legislation applies to particular bodies or associations imposing upon them additional liabilities, it is not open to the objection that it denies to them the equal protection of the laws if all persons brought under its influence are treated alike under the same conditions." And so on without end, are the authorities. We may conclude this phase of the discussion by the simple remark that all persons brought under the influence of the carbon black law are treated alike under the same conditions.

The case of Cusick Co. v. the City of Chicago, 242 U. S. 526, answers the contentions of complainants below, that because all other users of gas find

themselves free from the requirement of heat utilization, that the law unduly discriminates. It is to be remembered that all other users, except those employing gas for lighting use, use it only for its heat content, whereas the entire heat content goes to waste in the combustion for carbon production. It was contended in the Cusick case that because the ordinance there in question—one prohibiting the erection of billboards in residential districts—did not also prohibit fences and all like or similar structures, the discrimination was unlawful. But this Court said: "Such a prohibition is not to be deemed unduly discriminatory because not including fences and other structures found less likely to become a source of public injury."

The contention, we submit, is idle that because a percentage of the heat or heat value of any fuel is, of necessity lost by those using gas or other fuels for heat purposes, that the requirement that those using a fuel for non-fuel purposes utilize the heat, is on that account discriminatory and serves to vitiate the act. Yet such, evidently, were the successful contentions below. If it were a requirement that special legislation had also to comprehend regulations relating to every affiliated subject—in short, to establish a code—it would be a practical, if not a theoretical, impossibility to ever enact valid legislation on any subject. Legislatures are hardly to be obliged to delve into the realms of science, nor are their efforts at police legislation subjected to microscopic criticism, or even captious objection, much less metaphysical refinements.

Carroll v. Greenwich Ins. Co., 199 U. S. 411.

The provision of the Wyoming carbon black law that the heat be fully and actually applied by carbon makers if they desire to draw their gas from the ten-mile radius, is to be construed on at least common sense principles. The Legislature could have meant no more than that the usual and ordinary use be made of the heat. It would be to impute an absurdity to the Legislature to assert that it had as its intention to require carbon makers to successfully utilize a greater percentage of the heat generated than is capable of being done by those using gas for fuel purposes only.

Natural Gas Cases.

We have, and perhaps unnecessarily, reviewed the foregoing authorities prior to a discussion of the cases dealing specifically with natural gas as such. This was done, of course, only to remind of the wide variety of instances in which an exercise of the police power, as against the selfsame objections urged in the case at bar, have been sustained.

We now come to a review, as brief as may be, of the specific subject matter here involved.

The question seems to have first arisen in this Court as long ago as 1899, in the several cases entitled Ohio Oil Co. v. Indiana, found, pp. 190 to 213, 177 U. S., and we beg the Court's indulgence to remind it of its holding there.

The State of Indiana passed a statute professedly under the "public safety" branch of the police power, rendering it unlawful for anyone having possession or control, to permit the escape of natural gas into the open air. The Attorney General of the State filed a complaint in one of the State courts,

seeking an injunction against the Ohio Oil Company for repeated and continuous violations. The complaint was not predicated upon any danger to the public safety, but upon the ensuing waste of a natural resource to the injury of consumers and to the injury of the prosperity of the State (pp. 192-194), it having been alleged (p. 193) "the fuel supplied by the natural gas * * * is the cheapest and best known to civilization, and the value of the natural gas deposit to the State and to its citizens is many millions of dollars." The complaint then goes on to recite that due to gas discovery, immense sums have been invested in manufacturing enterprises, bringing an increase of population and its attendant benefits, and that in the event of gas exhaustion, many of such enterprises would be compelled to stop operations, to the great detriment of those affected, as well as the people at large.

In the case at bar an equivalent showing was made by affidavits filed on behalf of the defendants below, to the effect that, due to the presence of natural gas, various new industries were coming into life (pp. 69-70 Trans.—affidavit of Olson, p. 79 Trans.—affidavit of Overpack, p. 81, Trans.) and that they were dependent upon a continuance of gas supply for their operations.

And there are many features common to the case at bar and the one under review, as there are necessarily common conditions as between all communities and industries using or dependant upon gas for fuel. There, as here, many houses and industries are only equipped for the use of gas. It is to be particularly noted that in the Ohio Oil Case the Attorney General departed entirely in both his alle-

gations and the relief sought, the theory of the act whose violation he sought to restrain. He did not proceed upon the theory proclaimed by the act, that the escape of gas was a menace to the public safety, but that it was an injury to their general welfare and prosperity, because the gas wasted by the defendant was of great value to the communities affected. Almost, indeed, it seems that the complaint might have proceeded upon the theory of sovereign right, independent of the terms of the act directed against waste, as a measure of public safety.

Defendant first sought to justify generally by demurrer, that the act in question was violative of all the constitutional rights asserted in the case at bar by the Midland Carbon Company and its affiliated organization, the Occidental Oil and Gas Company. The demurrer having been overruled, it was then sought to justify on the merits, by allegations and proof of large expenditures, good faith operation, free from injury to the public safety, that the escape of gas was necessary in order that the oil in the well might be withdrawn therefrom, and that "no machinery or process of any kind has ever, by the highest skill, been devised or known to the world" whereby the oil can be procured without an escape of the gas; that to be required to shut in the gas would entail ruination and loss to defendant's business.

But notwithstanding these allegations and others almost identical with many of those made in the case at bar, it was held by this Court that the act in question was a valid police measure; that it was competent to prevent waste; that so to do was

not a taking of private property without compensation; nor did it amount to a denial of due process, but was only a regulation by the State "of a subject which especially comes within its lawful authority."

And so do we contend in the case at bar. We assume that waste, whatever its form, may be prevented. It is scarcely to be presumed that only the waste of allowing the gas to escape into the air, is subject to regulation. In the case at bar, the carbon industry, as has already been shown, is chemically at least, ninety odd per cent. inefficient. And in view of the allegations in the Ohio Oil Case and this Court's decision, it is very manifest that the prevention of waste assumed the much broader aspect than merely protecting owners of gas because they were owners of adjacent land under which the gas passed. Were it competent for the Legislature to protect only one owner, as against waste by another, all the owners could agree as to use or waste or disposition of the gas, and defeat the act. But protection of a natural resource extends in its scope, much beyond the rights of those upon or under whose soil such resource may, perchance, exist. So in the case at bar, the rights, not only of surface owners, but also those of domestic and industrial users within the specified area of ten miles, are the objects of legislative protection.

It is true, in the Ohio Oil Case that the Court said that the surface properties of gas and oil "could not be absolutely deprived" of the right to reduce to possession "without a taking of private property"; but in the case at bar, there is very far from being absolute deprivation. All owners, sellers

and producers of gas have the right, unrestricted, to reduce it to possession for purposes of light, fuel and power, as well as for all other purposes whatsoever, including, indeed the restricted purpose of carbon manufacture, if only utilization of the fuel value and content of the gas be made. This is only regulation. To be "deprivation of right," the act would have to prescribe that it would be unlawful to remove gas or reduce it to possession for any purpose whatever. And applicable here was the observation of this Court in disposing of the contentions in the Ohio Oil Case, that because the oil could not be removed without the prior release of the gas, fundamental rights had been invaded, and with reference to which this Court held (p. 211): "These contentions but state in a different form the matters already disposed of. They really go not to the power to make the regulations, but to their wisdom. But with the lawful discretion of the Legislature of the State, we may not interfere.

"In view of the fact that regulation of natural deposits of oil and gas and the right of the owner to take them as an incident of title in fee to the surface of the earth, as said by the Supreme Court of Indiana, is ultimately but a regulation of real property and they must hence be treated as relating to the preservation and protection of rights of an essentially local character."

Contentions that a reduction to possession of natural gas entailed the right to do with it as pleased the owner, met short shrift at the hands of the Supreme Court in Kentucky in the case of Commonwealth v. Trent, 77 S. W. 390 (Ky.), where it was held:

Syll: "Acts 1891-93, pp. 60, 61, enacted for the purpose of preventing a waste of gas, provide in Sec. 1, that owners, etc., of gas wells shall confine the gas until such time as it shall be utilized," etc.

Opinion, p. 393:

> "The position that the defendants may do what they please with the gas after it is reduced to possession by them cannot be maintained. For, as the gas goes out of the gasometer, its place is taken by other gas coming from the well. Property is the creation of law. *The use of property may be regulated by law.* The legislature may protect from waste the natural resources of the State which are the common heritage of all. The right of the owner of property to do with it as he pleases is subject to the limitation that he must have due regard for the rights of others. To allow the storehouse of nature to be exhausted by the waste of the gas would be to deprive the State and its citizens of the many advantages incident to its use."

That the legislature may prevent this is well settled.

> Ohio Oil Co. v. Indiana, 177 U. S. 190;
> State v. Ohio Oil Co. (Ind.), 49 N. E. 809; 47 L. R. A. 627;
> Donahue on Petroleum & Gas, Sec. 23.

In the case foregoing, it will be noted that natural gas is characterized as the "common heritage

of all," and that to permit waste would be "to deprive the State and its citizens of the many advantages incident to its use."

Assuredly, in the case at bar, the statute is only directed against a use calculated to shortly deprive the State and its citizens of the many advantages incident to gas as a fuel.

A similar holding in principle is found in the case of Jamieson v. Indiana Natural Gas Co., 128 Ind. 555 (28 N. E. 76), which upheld a legislative regulation of the pressure of gas in pipes, it being there said: "It is a mistake to suppose that regulating the use of property under the police power is a taking without process of law * * *. In the case at bar there is no taking of property; there is simply a regulation of its use, leaving the ownership untouched."

We submit, by nothing short of distortion can the Wyoming statute be said to go beyond regulation. Assuredly, it leaves the ownership untouched. A specified use only comes within its provisions, and the ban upon that may be lifted by compliance with prescribed conditions.

Indiana v. Ohio Oil Co., 150 Ind., 21; 47 L. R. A. 627.

This is the case appealed to and affirmed by this Court in 177 U. S. 190, reviewed supra, and is cited here only as an authority to the effect that not only co-owners of the gas, because of proprietorship of adjacent properties, may be protected, but also the community at large is entitled to be protected in a husbanding of the gas supply. The rights of all

owners were held to be qualified by "the rule that the owner has a right to do as he pleases with or upon his own property, is subject to many limitations and restrictions, one of which is that he must have due regard for the rights of others." And in that case, as in the one at bar, it was shown that the gas pressure had fallen from 350 pounds to 150 pounds, and concerning which the Court said: "This very strongly indicates the possibility, if not the probability of exhaustion." And further, with reference to "reduction to possession," the Court there stated, of the Ohio Oil Company: "It may use its wells to produce gas for a legitimate use, and must so use them as not to injure others or the community at large. The continued waste and exhaustion of the natural gas of Indiana through appellees' wells would not only deny to the inhabitants the many valuable uses of the gas, but the State, where many quasi public corporations have many millions of dollars invested in supplying gas to the State and its inhabitants, will suffer the destruction of such corporations, the loss of such investments, and a source of large revenues."

And it was successfully argued in the case at bar in the Court below, that the protection of towns and their inhabitants and industries generally, was not a "public use!" and hence that the act in controversy is void!

THE FLAMBEAU LIGHT CASE.

Townsend v. State, 147 Ind. 624; 47 N. E. 19; 37 L. R. A. 297. This case is commonly known as the Flambeau Light case.

The statute, with the violation of which appellant was charged in the affidavit, provides that "the use of natural gas for illuminating purposes in what are known as flambeau lights, is a wasteful and extravagant use thereof, and is dangerous to the public good, and it shall therefore be unlawful for any company, corporation, or person, for hire, pay, or otherwise, to use natural gas for illuminating purposes in what are known as flambeau lights in cities, towns, highways, or elsewhere; provided, that nothing herein contained shall be so construed as to prohibit any such company, corporation, or person from the necessary use of such gas in what are known as 'Jumbo' burners inclosed in glass globes or lamps, or by the use of other burners of similar character so inclosed as will consume no more gas than said 'Jumbo' burners."

Against the validity of this statute were raised all of the usual constitutional objections, which were disposed of seriatim, by the Court. Pertinent portions of the discussion read:

> "It is agreed on both sides that the act is an exercise of, and that it calls into exercise, the police power of the State. It is true that natural gas, when brought to the surface and secured in pipes, is property belonging to the person in whose pipes it is secured.
>
> "Corwin v. Indiana & O. Oil, Gas & Min. Co., 120 Ind. 575; 6 L. R. A. 579, 2 Inters. Com. Rep. 758; Jamieson v. Indiana Natural Gas & Oil Co. 128 Ind. 555, 12 L. R. A. 652, 3 Inters. Com. Rep. 613.
>
> "But the act in no way deprives the

owner of the full and free use of his property. It restrains him from wasting the gas to the injury of others or to the injury of the public. It might present a very different and serious question whether the Legislature has the power to prevent him from wasting his own property, if by so doing he in no way injured others, as appellant's learned counsel erroneously assume.

* * *

"* * * The case of Com. v. Tewksbury, 11 Met. 55, was a case in which Tewksbury was indicted for the violation of a statute of Massachusetts providing that 'any person who shall take, carry away or remove by land or by water, any stones, gravel, or sand, from any of the beaches in the town of Chelsea * * * shall, for each offense, forfeit a sum not exceeding $20.00,' etc. He defended on the grounds that he was the owner of the land in fee, and the statute did not intend to prohibit the owner from taking gravel from it, and, if the statute did so intend, it was unconstitutional, under Article 10 of the Declaration of Rights, which, like our own Constitution, provided that 'no part of the property of any individual can be taken from him or applied to public uses without making him a reasonable compensation therefor.' That great jurist, Chief Justice Shaw, delivering the judgment of the Court, said: 'The Court are of the opinion that such a law is not a taking of the property for pub-

lic use, within the meaning of the Constitution, but is a just and legitimate exercise of the power of the Legislature to regulate and restrain such particular use of the property as would be inconsistent with or injurious to the rights of the public. All property is acquired and held under the tacit condition that it shall not be so used as to injure the equal rights of others, or to destroy or greatly impair the public rights and interests of the community. • • •

Without hazarding an opinion upon any other question, we think that a law prohibiting an owner from removing the soil composing a natural embankment to a valuable navigable stream, port, or harbor is not such a taking, such an interference with the right and title of the owner, as to give him a constitutional right to compensation, and to render an act unconstitutional which makes no such provision, but is a just restraint of an injurious use of the property which the legislature have authority to make.' In Lawton v. Steele, 152 U. S. 133, 38 L. Ed. 385, Mr. Justice Brown, of the Supreme Court of the United States, delivering the opinion of that Court, said: 'The extent and limits of what is known as the police power have been a fruitful subject of discussion in the appellate courts of nearly every State in the Union. It is universally conceded to include everything essential to the public safety, health and morals, and to justify the destruction or

abatement by summary proceedings of whatever may be regarded as a public nuisance. * * * Beyond this, however, the State may interfere wherever the public interests demand it; and in this particular a large discretion is necessarily vested in the legislature, to determine, not only what the interests of the public require, but what measures are necessary for the protection of such interests.' If this be a correct enunciation of the law on the subject in hand—and we think it is—it disposes of much of the argument of the learned counsel as to the question of fact involved in the act in question, as to whether in fact burning natural gas by flambeau lights is a waste of natural gas. When the legislature inquired into that fact, their determination was conclusive on the courts."

Citing many cases.

We need not, we feel, pursue the analogies to the case at bar, to the facts and holding of the one from which the quotations last above were taken. There, as here, there was a "use" declared to be "wasteful and extravagant," and the determination of this fact by the Legislature was held to be conclusive, and it seems not to appear in the Flambeau case, by affidavit or otherwise, as it does in the case at bar, that the restricted use, was, in fact, a waste. It is submitted that the Legislature has the same right to define waste that it has to define nuisance or crime, and unless its definition is wholly and utterly unrelated to the facts which it assumes to use as the basis of its definition, the Courts must

leave its action unaffected. Branson v. Bush, U. S. Sup. Ct. Adv. Op. Jan. 15, 1920, p. 135.

Illustration of the power of State Legislatures to define intoxicants is found in the many instances referred to by this Court in the very recent case of Ruppert v. Caffey, U. S. Sup. Ct. Advance Opinions, Vol. 6, dated Feb. 1, 1920, where the definition or classification of intoxicants ranged all the way from one-half of one per cent of alcohol by volume, to three and four-tenths per cent by volume, thus foreclosing the issue of fact. No distinction is perceived in principle, to allow a Legislature to define waste of a natural resource, finding ample support in facts, from the power which does not even seem to have been questioned, of defining and declaring as a matter of law, what alcoholic content would render liquid substances intoxicating. In fact, the latter instances would seem much more subject to debate than is a declaration that a non-fuel use of the most precious of fuels is a waste.

The New York case of *Hathorn v. Natural Carbonic Gas Company*, 194 N. Y. 326; 23 L. R. A. 436, is a further illustration of the fact that it is competent to legislate in protection of rights arising from natural resources. The holding is reflected in the syllabus, which reads:

> "Water—Mineral Reservoir—Waste—Injunction.
>
> "1. A land owner who has tapped, by wells located on his land, a reservoir of mineral water extending under a large area, will be enjoined from drawing it by means of pumps or other apparatus for the purpose of securing for the market a supply of

> gas arising from the water, thereby wasting great quantities of the water, and destroying or impairing its flow from springs located on the lands of others, and destroying or impairing the valuable character of the water for purposes for which it has been habitually used."

There is not in the case at bar any question as yet of securing the gas by means of pumps or artificial contrivances, and we take that to be an immaterial fact. It is, amongst other things, against the excessive and unlimited use of a natural resource, that the Legislature has the right to interfere, and that is irrespective of the means employed to secure the product.

In the Hathorn case there was involved the question of protecting co-owners only. The case at bar possesses not only that feature, but the greatly enlarged one of public protection.

Lindsley v. Natural Carbonic Gas Co., 220 U. S. 62.

This case upheld the New York statute prohibiting the owner of the surface, by pumping on his own land, water, gas and oil, to deplete the subterranean supply common to him and other owners, to their injury, and anent the police power, this Court also took occasion to say:

> "The equal protection clause of the 14th amendment admits of a wide exercise of discretion, and only avoids a classification which is purely arbitrary, being without reasonable basis; nor does a classification

having some reasonable basis offend because not made with mathematical nicety or resulting in some inequality.

"This Court will assume the existence at the time the Statute was enacted, of any state of facts that can reasonably be conceived and which will support a classification in a State statute attacked as denying equal protection of the law."

"The burden of showing that a classification in a State statute denies equal protection of the law as not resting on a reasonable basis, is on the party assailing it.

"A police statute may be confined to the occasion for its existence. If there is a substantial difference in point of harmful results between various methods of pumping gas and mineral water, that difference justifies a classification, and the burden is on the attacking party to prove the classification unreasonable."

Oklahoma v. Kansas Natural Gas Co.,
221 U. S. 251.

This case involved the validity of an Oklahoma statute prohibiting the transportation of natural gas beyond the State, and such enactment was declared invalid as an infringement upon the Commerce Clause of the Constitution. To briefly review that case, we find it there to have been held (Syllabus):

"There is a distinction between the police power of the State to regulate the taking of a natural product, such as natural

gas, and prohibiting that product from transportation in interstate commerce. The former is within, and the latter is beyond the power of the State. Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, distinguished."

P. 251:

"As to conservation, appellant says that 'the case narrows itself to the single question of whether in any event a State has the right to conserve its natural resources, and second, has it the right to preserve a common supply for the equal use of all those who may by law resort to it.'"

"The second question is not presented in the case. *The provisions of the statute are not directed against waste.* They are directed against any use of the gas except in the State. The right of the State 'to preserve the common supply for the equal use of all' owners is not denied by appellees. We put the question out of consideration, therefore, except incidentially, and concede the right of the State to preserve the supply of gas, as we shall hereafter set forth."

P. 252—Ohio Oil Co. v. Indiana, 177 U. S. 190, reviewed and said:

"The right of taking gas is common to all owners of the surface, and because of such a common right in all land owners, an unlimited use (against a wasteful use the statute was directed) by any, it was competent for the State to prohibit.

"This limitation upon the surface owners of property was justified by the peculiar character of gas and oil, they having the power of self transmission, and that therefore to preserve an equal right in all surface owners there could not be an unlimited right in any."

P. 253 (italics ours):

"As to gas and oil, the surface proprietors within the gas field all have the right of reducing to possession the gas and oil beneath. They could not be *absolutely* deprived of this right which belongs to them, without a taking of private property. And this right, it was further said, was co-equal in all of the owners of the surface and that the power of the State could be exerted for the purpose of protecting all the collective owners, by *securing a just distribution* to arise from the enjoyment by them, of their privilege to reduce to possession and to reach a like end by preventing waste. And further characterizing the statute, it was said, viewed as one to prevent the waste of the common property of the surface owners, it protected their property, not divested them of it. And special emphasis was given to this conclusion by the comment that to assert that the right of the surface owners to take was under the 14th amendment. A right to waste, was 'to say that one common owner may divest all the others of their rights without wrong doing,'

but the law making power cannot protect all the owners in their enjoyment without violating the constitution of the United States." * * *

"The Statute of Indiana was directed against waste of the gas and was sustained because it protected the use of all the surface owners against the waste of any. The statute was one of true conservation, securing the rights of property, not impairing them. Its purpose was to secure to the common owners of the gas a proportionate acquisition of it, a reduction to possession and property, not to take away any right of use or disposition, after it had thus become property. It was sustained because such was its purpose, and we said that the surface owners of the soil, owners of the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property. It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession they could not be deprived of any right which attached to it when in possession."

"The Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do. It does not protect the rights of all surface owners against the abuses of any. It does not alone regulate the right of reduction to possession of the gas, but when the right is exercised, when

the gas becomes property, takes from it the attributes of property, the right to dispose of it; indeed, selects its market to reserve it for future purchasers and use within the State on the ground that the welfare of the State will thereby be subserved. The results of the contention repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land, and when reduced to possession, is his individual property subject to sale by him, and may be a subject of intrastate commerce and interstate commerce. The statute of Oklahoma recognizes it to be a subject of intrastate commerce, but seeks to prohibit it from being the subject of interstate commerce, and this is the purpose of its conservation."

P. 256:

"Court reviews 120 Ind. 575, which declared a statute to be unconstitutional because it was made unlawful to pipe or conduct gas from any point within the State to any point or place without the State—and says, p. 257:

"The case is valuable because the Court, through the same justice who wrote the opinion, distinguished between an exercise of the police power to *regulate the taking* of natural gas, and its prohibition in interstate commerce."

P. 258:

"Referring to Lindsley Case, 220 U. S.

61, it was said: It is to prevent or avoid the injury and waste suggested that the statute was adopted."

P. 260:

"At this late day it is not necessary to cite cases to show that the right to engage in interstate commerce is not the gift of the state, and that it cannot be regulated and restrained by a state, or that a state cannot exclude from its limits a corporation engaged in such commerce. To attain these unauthorized ends is the purpose of the Oklahoma statute."

In short, the holding of this Court in the above case is, that a State cannot prohibit an article of intrastate commerce, from becoming one of interstate commerce. There was, to repeat, no feature of waste in the case, and that single observation serves to in all respects differentiate the principles applicable, and there is no phase of the Wyoming State having any possible relationship to interstate commerce; notwithstanding these features, however, the remark of this Court, that "it surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession, they could not be deprived of any right which attached to it when in possession," after it had said that no question of waste was present, was seized upon in the argument below, as being conclusive, final and completely adjudicatory of the rights and interests involved. We submit, it has utterly no application. The Wyoming statute regulates a use only, and one

declared to be wasteful at that, and which declaration has ample support in the facts. There is no sort of prohibition against reduction of the gas to possession, and there is only the one use restricted; hence, in our view, the Oklahoma case, so far as it is applicable at all, but serves to affirm the doctrines for which we contend, namely, that the taking of a natural product is subject to regulation. This being true, it is beyond the province of any court to inquire into the wisdom or policy of the particular regulation, so long as it is not wholly foreign to the end it professes to subserve.

THE EXCLUDED TESTIMONY.

Assignments of Errors Nos. 10 and 11 (Supra pp. 36-41) (pp. 118-120 Trans.)—charge it to have been error on the part of the Court below to exclude from the record and from consideration, articles and writings of authors on the subject of the use of natural gas for carbon manufacture, as well as articles promulgated from official sources on that subject, particularly articles of issue and promulgation by the Department of the Interior of the United States. It is to be observed that none of such articles were offered in any sense *testimonially*. They were offered *evidentially*. Evidential of the fact of conservation agitation; evidential of the preponderant opinions with relation to such a use of natural gas; evidential of current facts or current history with relation to the subject matter; evidential of the grounds upon which the Court was entitled to assume the Legislature had acted.

It was held by this Court, in Holy Trinity

Church v. U. S., 143 U. S. 462, that "another guide to the meaning of a statute is found in the evil it is designed to remedy; and for this, the Court properly looks at contemporaneous events, the situation as it existed and as it was pressed upon the legislative body." Citing U. S. v. Union Pac. Railroad Co., 91 U. S. 72. And in Noble State Bank v. Haskell, 219 U. S. 104, and speaking of the police power, this Court said: "It may be put forth in aid of what is sanctioned by usage or held by the prevailing morality or strong or preponderant opinion, to be greatly and immediately necessary."

In offering the excluded matter it was only to acquaint the court, if it did not already know, and it did not seem to know "the strong and preponderant opinions" with relation to the subject of natural gas consumption for the manufacture of carbon black. In other words the excluded matter was evidential of the grounds justifying legislative action, and we submit it was error to refuse to entertain the offered evidence. This feature of the case, is, of course, necessarily comparatively a minor one. We concede that however great the agitation about conserving natural gas and however strong the opinions may be against its use for carbon black, of course the Legislature must enact proper measures, which, it is submitted in the case at bar, it has done, except, perhaps, that those adopted are not nearly as drastic as the situation warrants. But at all events, agreeing with the Legislature as to waste were the writings offered, as well as going to establish at least strong opinion on the question of using gas for carbon manufacture. The "Hand Book of Natural

Gas" referred to in Error No. 10, condemns its use for carbon in these words: "In this process (identically the one employed by the appellees in this cause) no use is made of the heat energy of the gas • • • and it is therefore very wasteful."

The Smithsonian Bulletin condemns it in this language: "Carbon black is now made by the wasteful process of incomplete combustion of natural gas. • • • The only product obtained is the carbon black, and this utilizes only a very small percentage of the total carbon content of the gas.

"The total annual quantity of natural gas used for carbon black manufacture is more than 26,000,000 M. cubic feet. This wastes about ten times as much gas as was used in the city of Louisville, or the equivalent of one-eighth of the domestic natural gas consumption in the United States.

"Dr. J. B. Garner, of the Mellon Institute of Industrial Research, Pittsburgh, Pennsylvania, has demonstrated that with correctly designed appliances the yield of carbon black can be made three times as high as that usually obtained by the wasteful process of incomplete combustion, and in addition thereto, save a useable commercial gas."

We trust that we will be pardoned in setting out herein another article on this subject, as it goes to establish the prevailing opinion, with respect to carbon manufacture, wherever that question has arisen. In any event, it will be informative.

On page 60 G of the "Oil, Paint and Drug Reporter," a publication emanating from 160 William Street, New York City, in the issue of April 21, 1919, under the title "Carbon Black Industry Studied to Aid Gas Conservation," the following

appears: "The carbon black industry is being studied by the United States Bureau of Mines. The intention is to find out all that is possible about this industry so that it may be revolutionized and production be secured in a much more economic way. The Pittsburgh office is working on the chemical side and the Bartelsville Petroleum Experimental Plant is investigating the field side of the problem. It will be recalled that when the natural gas conservation campaign in West Virginia was at its height, one of the largest carbon black producers in this country was induced to quit that field and the carbon black industry was urged to locate elsewhere. The Bureau of Mines is carrying forward the work started by the Fuel Administration, endeavoring to preserve the carbon black industry and make it more efficient commercially."

Lastly, on this subject, attention is called to the statement in the Government Bulletin mentioned in Assignment No. 11, that the making of carbon black out of natural gas, "is a form of improper use, rather than absolute waste. The carbon black industry in West Virginia uses fifty per cent. more gas than is furnished to all of the domestic natural gas consumers in that state."

We concede that to use gas for carbon manufacture is not an absolute waste. It would have to be one hundred per cent. waste to be absolute. We have seen by the Neal affidavit that it is ninety odd per cent. waste so far as recovering the carbon is concerned.

So it is submitted that writings and articles of the character mentioned should not have been rejected, or if rejected, that judicial notice thereof

should have been taken (Lindsley case, supra). The litigation is not between private parties, but against appellants in their official capacities—really albeit not technically against the State of Wyoming. Its legislature was put upon trial, and we must say, convicted, condemned and executed, so far as the statute in controversy is concerned. Current facts such as those offered, tended to establish ground for its action, and serve to relieve it of the unsupported and insupportable, yet claimed, deductions, that its action was fanciful, arbitrary and oppressive, without the counterpoise of a single virtue.

CONCLUSION.

Assuming its reasonable exercise, there is, against the police power, no such thing as vested right. Similiarly, there is no such thing as impairing the obligation of contracts; there is no such thing as taking private property without due process of law; there is no such thing as taking property without compensation; nor is there any such thing as a denial of the equal protection of the laws. In other words, and of course still assuming its reasonable exercise, there is, as against the police power, no such thing as violating any provision of the Constitution of the United States nor any of its amendments, for the police power is one of the reserved powers; and that only a clear abuse of this power can find correction at the hands of the courts. In short that, if in a given instance, instead of really exercising the police power, the legislature, under guise of doing so, has really exercised some other and unpossessed power, or has obviously acted

with ulterior purpose of spoilation and oppression (and we have seen that this latter is never inferred), that the contrary is always presumed, and that any alleged abuse of exercise must be "obvious," "clearly apparent," "obviously offensive"; in fact, almost shocking to conscience, before a declaration of invalidity is competent.

If the case at bar presents these elements that go to render the Wyoming law void, then we can scarcely escape the belief that the Courts have been almost uniformly wrong in upholding those instances of exercise, that we have hereinbefore reviewed.

If it be forbidden to regulate a gas consumer who uses, even according to his own admission, almost four times the amount of gas of all other consumers combined, and that use, one of ninety odd per cent. inefficiency, then there is no such thing as the police power, save in theoretical aspect, which of course, is an admissible hypothesis, but such apparently was the one proceeded on below.

The public welfare and the public prosperity, including the encouragement of enterprise, are within the domain of police legislation. The inquiries to be answered in testing whether an enactment, purporting to be for the promotion of the public good, is fairly within the field of the police power, is, according to State v. Redmore, 134 Wis. 89; 114 N. W. 137; 14 L. R. A. (N. S.) 229; 126 Am. St. Rep. 1003; 12 Ann. Cases 408, well stated in Section 143, Freund, Police Power, thus:

"Does a danger exist? Is it of sufficient magnitude? Does it concern the public? Does the proposed measure tend to remove it? Is the restraint

or requirement in proportion to the damage? Is it possible to secure the object sought without impairing essential rights and principles?"

In the case at bar, it is obvious that the first five inquiries instinctively find affirmative answer. A danger of gas exhaustion not only exists, but immediately presses. It concerns, on the one hand, two corporations—in effect, only one—and on the other hand, several thousand domestic users in addition to a number of industrial consumers, one of whom alone, according to affidavit, employs ten times the number of men employed by the Midland Carbon Company and uses but one-tenth of the amount of gas. And assuredly the ten mile restriction tends at least to remove the danger of gas exhaustion, so far as towns or industries are concerned. And answering the last inquiry, it would not seem possible to secure any part of the object sought by the statute, to-wit, the conservation and protection of the gas supply, did it not forbid the excessive use within at least a specified area—and if, as according to all the authorities, police legislation embraces the encouragement of enterprise, it would seem to have the right to prevent the extravagant waste and consumption of a product upon which enterprise is dependent. Upon any reasonable interpretation of the statute, industrial plants cannot be said to be individually protected as such, within a ten mile radius, save in the aspect of public benefit that they be so protected.

But in another phase, and one assuredly free from objection, the carbon black law only awards, within the area specified, the right of preferential use of gas, giving domestic and industrial users

priority over smudge producers, and this finds its analogy in either the constitutions or the statutes of most, if, indeed, not all, of the non-riparian states as respects the use of water, a sample of which, for instance, is the provision of Section 6, Article 16, of the Colorado Constitution, providing: * * * "When the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using the water for agricultural purposes shall have preference over those using the same for manufacturing purposes."

Water, less precious than natural gas, because an ever recurring substance, has always been held the subject of competent regulation as to use. *A fortiori* are the reasons for gas regulation. It is consumed in the use, and when consumed, is gone forever. So we say, if it be the opinion of the Legislature that domestic and manufacturing users of gas should take precedence over those enjoying it for a fraction of its smudge content, and consuming it in quantities so great as very soon to argue utter deprivation to all other users, then we submit that its action is not only valid, but highly praiseworthy as well. Not only this: it would, we submit, have been competent to have prohibited the use of gas for carbon manufacture not merely within a ten mile radius of towns, but to have excluded it from the state altogether. In the case of Noble State Bank v. Haskell, 219 U. S. 104, it was held by this Court that the banking business, however legitimate and however great its rights at common law, was none the less subject to regulations under

the police power, "and even to prohibition except on such conditions as the State may prescribe."

While there are many grounds present, calling for regulation, conceding there to be any whatsoever, the Court cannot inquire as to the wisdom or policy of that enacted. Such would be to interfere with legislative discretion. The ideal is not to be exacted of any Legislature. To do so would be to deprive them of their law making powers altogether, and we submit that such was exactly the effect of the ruling by the Court below in this instance, without ascribing grounds or finding facts or assigning reasons. Legislation should hardly be so lightly set aside, even granting carbon black to be a useful product, as was many times declaimed in the argument below.

It was within the police power of the State of Wyoming to regulate the carbon business; there are grounds for that regulation; the regulations prescribed have a fair tendency to effectuate the objects of the act. The inquiry ends.

The bill of complaint should have been dismissed, and we respectfully ask this Court to enter such an order.

WILLIAM L. WALLS,
Attorney General of Wyoming,

HENRY E. LUTZ,
Counsel for Appellants.

FILED
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JAMES D. MAHER,
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Supreme Court of the United States

OCTOBER TERM, 1919.

No. [redacted]219

WILLIAM L. WALLS, ATTORNEY GENERAL OF THE STATE OF WYOMING, FRANK A. LITTLE, PROSECUTING ATTORNEY OF BIG HORN COUNTY, AND ROBERT D. CAREY, GOVERNOR OF THE STATE OF WYOMING,

Appellants,

vs.

MIDLAND CARBON COMPANY AND OCCIDENTAL OIL AND GAS COMPANY,

Appellees.

Appeal from the District Court of the United States for the District of Wyoming

ARGUMENT FOR APPELLEES

JOHN W. LACEY,
HERBERT V. LACEY,
REID L. CARR,
Of Counsel for Appellees

WM. SIDONET, INC., PRINTER, 9-15 MURRAY ST., N. Y.

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Supreme Court of the United States.

OCTOBER TERM, 1919.

No. 667.

WILLIAM L. WALLS, Attorney General, *et al*,
Appellants,

vs.

MIDLAND CARBON COMPANY, *et al*,
Appellees.

BRIEF AND ARGUMENT OF APPELLEES.

This is an appeal from an order granting an interlocutory injunction restraining the appellants *pendente lite* from enforcing against the appellees the penalties of Chapter 125 of the Wyoming Session Laws of 1919. (Trans., p. 85).

THE STATUTE.

The statute is as follows (Trans., p. 7):

"An act for the protection and conservation of the supply of natural gas of the State of Wyoming, prohibiting the waste and wasteful use of natural gas through the burning or consumption thereof for the manufacture or producing of carbon or other resultant products therefrom, prohibiting the taking, using, sale or other disposition of natural gas from gas wells for such

purposes and providing penalties for the violation of such Act.

Be It Enacted by the Legislature of the State of Wyoming:

Section 1. The use, consumption or burning of natural gas taken or drawn from any natural gas well or wells or borings from which natural gas is produced for the products where such natural gas is heated, consumed or otherwise wasted without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes is hereby declared to be a wasteful and extravagant use of natural gas and shall be unlawful when such gas or source of supply is located within ten miles of any incorporated town or industrial plant.

Section 2. No person, firm or corporation, having the possession or control of any natural gas well or wells, except as herein provided, or borings from which natural gas is produced, whether as a contractor, owner, lessee, agent or manager, shall use, sell or otherwise dispose of natural gas, the product of any such well or wells or borings for the purpose of manufacturing or producing carbon or other resultant products from the burning or consumption of such natural gas, without the heat therein contained being fully and actually applied and utilized for other manufacturing purposes or domestic purposes.

Section 3. Any person, firm or corporation violating any of the provisions of this Act shall be guilty of a misdemeanor and shall be punished by a fine of not less than One Hundred Dollars ($100); or more than Five Thousand dollars ($5,000) for each offense and each and every day in which any person, firm or corporation shall violate any of the provisions hereof shall con-

stitute a separate offense hereunder and subject the offender to the penalty hereby provided.

Section 4. This Act shall take effect and be in force after September 30th, 1919."

The action is brought to enjoin the state officials from enforcing the severe penalties of this statute, which, at the cumulative rate of one thousand dollars per day against each appellee, might, even in a comparatively short time, amount to a substantial part of the value of the total property invested.

AVERMENTS OF BILL OF COMPLAINT.

The bill of complaint quotes the statute in full. (Trans., p. 7). Its additional averments may be briefly summarized as follows:

The complainants are with one possible exception the only persons in the whole State of Wyoming against whom these penalties are directed or can be enforced. The statute bristles with severities that touch them alone. (Paragraph 13th, Trans. p. 8).

The conditions under which the conduct of their business is forbidden are so framed as exactly to coincide with all the conditions under which their business is being conducted (Paragraphs 11th, 16th, Trans., pp. 7, 10).

The statute in question violates the Constitution of the United States, deprives complainants of liberty and property without due process of law, impairs the obligation of pre-existing contracts and deprives them of the equal protection of the laws (Paragraphs 2nd, 12th, 17th, Trans., pp. 2, 8, 11-12).

Under the guise of regulation, the purpose and effect of this statute is to ruin and destroy complainants' existing business and deprive their re-

spective investments therein of value (Paragraphs 17th, 19th, Trans., p. 12).

The cumulative penalties of one thousand dollars per day, imposed not only upon the operator of the factory but upon the owner, lessee and manager of each well, are unreasonable and confiscatory and are designed to deter complainants from seeking a judicial determination of the validity of the act, on account of the risk of ruin in the event of an eventual adverse determination (Paragraph 19th, Trans., pp. 12-13).

The Midland Carbon Company, having duly obtained license so to do, has been engaged in the State of Wyoming since the year 1917 in the prosecution of its business of manufacturing carbon black from natural gas. (Paragraph 3rd, Trans., p. 2).

It owns a factory site of twenty-four acres located over a mile from the town of Cowley in Big Horn County on which it had, prior to the enactment of the statute, erected a complete manufacturing plant consisting of ninety steel and iron buildings of substantial size and construction, together with packing houses, warehouses, railroad siding, machine shop, tanks, workmen's dwellings and other buildings and equipment (Paragraph 3rd, Trans., p. 2).

In the erection of this factory, it had, prior to the enactment of the statute, expended over three hundred and seventy-five thousand dollars (Paragraph 3rd, Trans., p. 3).

The factory has been in daily operation since October, 1917, is wholly dependent upon a regular and constant supply of natural gas and can be used for no other purpose (Paragraph 3rd, Trans., p. 3).

All the gas consumed in said factory is first passed through a plant for the extraction of gaso-

line by the absorption process, resulting in the recovery of some sixteen hundred gallons per day of high gravity gasoline (Paragraph 3rd, Trans., p. 3).

Only the residue of gas that remains after gasoline extraction is consumed in making carbon black. The output of black is approximately thirteen thousand pounds per day (Paragraph 3rd. Trans., p 3).

The Occidental Company owns the land on which are located the gas wells by which the factory is supplied, owns and operates a pipe line six miles in length specially laid for the transportation of gas from said wells to said factory, is also the lessee of twelve hundred acres of mineral lands in the vicinity and contracts with another company for the extraction of the gasoline from all gas used for black manufacture (Paragraph 7th, Trans., p. 5).

In the acquisition and development of this property, the Occidental Company had, prior to the enactment of the statute, expended sums in excess of three hundred thousand dollars (Paragraph 7th, 8th, Trans., pp. 5, 6; see also Trans., p. 37).

It is alleged in the bill that both complainants are engaged in a joint enterprise with a view to the conduct of which their respective investments have been made and to which their combined efforts are essential (Paragraph 7th, Trans., p. 5).

In the prosecution of this enterprise, these two companies have, prior to the enactment of the statute, invested in good faith a total sum of nearly seven hundred thousand dollars in Wyoming, have erected upwards of one hundred permanent buildings in a place where three years ago there was no human habitation, and have established in the State of Wyoming a useful and

profitable industry, utilizing only gas from four wells which never before supplied a single consumer, and each of which is located within ten miles of an incorporated town. (Paragraphs 13th, 11th, pp. 8, 9).

Thus far the allegations of the bill may be aptly summarized in the language of *Southern Railway Company* vs. *Greene* (216 U. S., 400, 414):

> "In the case at bar we have a corporation which has come into and is doing business within the State with the permission of the State and under the sanction of its laws, and has established therein a business of a permanent character, requiring for its prosecution a large amount of fixed and permanent property, which the foreign corporation has acquired under the permission and sanction of the laws of the State".

The products gasoline and carbon black are of the highest utility to every citizen of the United States.

The gasoline, which is first extracted from the gas, is of unique value for the reason that its high-gravity renders it suitable for use in airplane motors, and it can also be blended with low-grade naphthas to produce an ordinary commercial fuel (Paragraph 6th, Trans., p. 4).

The recovery of this gasoline would be impossible except for the opportunity to utilize the residue of the gas in black manufacture (Trans., p. 5).

The allegations as to gasoline recovery are inexplicably characterized by the appellants as "utterly immaterial", although they disclose that appellees not only produce the maximum of value obtainable from the gas, but also preserve a part at least of its heat or fuel-content in a most needed form for public use.

Carbon black, a black pigment possessing to an extraordinary degree the properties of softness, miscibility with oil, and strength of color, is made only by burning a natural gas flame in contact with a metallic surface.

Its manufacture dates back to 1864, and has grown with the expansion of the publication of books and newspapers, requiring a black adapted to the rapid operations of the modern printing press. The use of carbon black for printing inks amounts to many millions of pounds annually. It is universally used and indispensable for this purpose. (Paragraph 4th, Trans., pp. 3, 4).

No black possessing like properties and uses can be commercially made from any substance other than natural gas. (Paragraph 4th, Trans., p. 3).

In making printing ink, carbon black is mixed with oil in the proportion of one part of black to eight parts of oil. Thus, the daily product of the factory is sufficient for the manufacture of one hundred and seventeen thousand pounds of printers' ink. (Paragraph 3rd, Trans., p. 3.) From each thousand feet of gas, after gasoline extraction, enough black is produced to print four thousand newspapers. (Paragraph 14th, Trans., p. 9).

The ink, so made of carbon black and oil, is used by publishers of books as well as newspapers.

We digress from discussion of the bill to remark that these allegations are supported by the affidavits of a number of manufacturers of printers' ink, which will be hereafter referred to, and which show that carbon black is the vehicle or medium by which the general dissemination of news and intelligence is accomplished, and is as necessary to the newspapers as the paper on

which their issues are printed or the metal from which their type is composed.

Another important purpose for which carbon black is widely used is as an ingredient in rubber compounds. So used it imparts tensile strength to rubber, and by retarding oxidation materially increases the durability of tires for automobiles, trucks and airplanes. It is extensively employed for this purpose by manufacturers throughout the United States (Paragraph 4th, Trans., p. 3).

Other purposes of general utility which carbon black serves are in the manufacture of typewriter ribbons, carbon papers, phonograph records, stove polishes, crayons, electrical compositions, paints and varnishes and black leather. This catalogue is by no means exhaustive but is sufficient to demonstrate the universality and importance of its use (Paragraph 4th, Trans., p. 3).

Carbon black has been for many years a staple commodity, well-known in the many arts and industries in which it is employed, and of which over forty million pounds are annually required in the United States (Paragraph 4th, Trans., p. 3).

Its manufacture has been conducted for many years without legislative interference or restriction in Pennsylvania, West Virginia and many other States. The present statute is the first instance in the fifty years history of the industry of the enactment of a law designed to prevent or limit the use of natural gas for such manufacture. In short, the carbon black industry is and has long been an established, legitimate and essential business, in which millions of dollars have been invested, by which many persons are employed, which results in a product of the highest general utility and value, and the suppression or curtailment of which would cause incalculable injury

and inconvenience to the entire public (Paragraph 4th, Trans., p. 4).

In their bill of complaint, the appellees further allege concerning their use of gas:

1. That they do not use pumps, compressors or other means artificially to increase or cause a disproportionate flow of gas, but use only such gas as by the natural law of flowage rises in the wells, drawing on no well to more than a small percentage of its capacity. (Paragraph 5th, Trans., p. 4).

2. That each thousand cubic feet of gas consumed yields one and three-fourths pounds of merchantable carbon black and over two-tenths of a gallon of gasoline, and the combined value of these products exceeds twenty-one cents, which is far more than the market value of the gas consumed to make them (Paragraph 14th, Trans., p. 9).

3. That no gas is allowed to escape into the air but all is carefully metered, controlled as to pressure by regulators, and fully consumed under conditions conducive to the utmost economy of operation (Paragraph 5th, Trans., p. 4).

4. That the processes and appliances used are the best that fifty years of experiment and experience have been able to devise and are the most efficient known. (Paragraph 5th, Trans., p. 4).

5. That they have never interfered with the supply of gas of any other consumer but on the contrary themselves provide the natural gas supply for the neighboring town of Cowley. They use gas from only four wells which are located some six miles from Cowley and eight and one-half miles from Lovell, in the midst of a gas-producing region of resources so vast that only

a tiny fraction of the capacity of the gas wells can be marketed or sold for other purposes. (Paragraphs 11th, 13th Trans., pp. 8, 9).

6. That it is impossible to manufacture carbon black and at the same time fully and actually use for other manufacturing purposes or for domestic purposes the heat contained in the natural gas consumed (Paragraph 15th, Trans., p. 10).

7. That the failure fully to utilize the heat of combustion is not something peculiar to the manufacture of carbon black but is universal, inherent and unavoidable in the use of gas and all other fuels for production of power, light and other resultant products (Paragraph 15th, Trans., p. 10).

Appellees' Affidavits.

The allegations of the bill of complaint are supported by copious affidavits.

The most important evidence adduced will be briefly summarized.

Uses of Carbon Black.

The general nature and uses of carbon black are set forth by C. Harold Smith, president of the Binney and Smith Company of New York, who has been engaged in business as a dealer in blacks since 1880. He deposes (Trans., p. 25):

> "The principal manufactures in which carbon black is an essential or usual ingredient are: (1) printing ink, (2) pneumatic tires for automobiles, (3) solid tires for trucks, (4) black and gray paints, (5) black varnishes, (6) shoe polish, (7) stove polish, (8) typewriter ribbons, (9) carbon or manifold paper, (10) phonograph records, (11) electrical compositions (12) colorings for cement, (13) tarpaulins, (14)

oil cloth and carriage cloth, (15) cameras, (16) crayons, (17) book binders' board, (18) black leather.

I estimate the total annual requirements of carbon black in these industries to be over forty million (40,000,000) pounds per year, of which the greater part is required by the printing ink and automobile tire trades."

Mr. Smith further states that preeminent among the uses of carbon black is in the manufacture of printing inks, and that its softness, miscibility with oil, covering power and color have caused its use for this purpose to be universal. (Trans., p. 26).

When added to rubber compounds, it has the property of increasing the tensile strength and durability of rubber, and hence is extensively employed by manufacturers of automobile tires both solid and pneumatic (Trans., p. 26).

In a second affidavit Mr. Smith enumerates one hundred and twenty-nine rubber manufacturers supplied with carbon black during 1918, comprising all the principal manufacturers of automobile tires and rubber goods in the United States (Trans., pp. 42-45).

The effect of carbon black as an ingredient in rubber compounds is scientifically set forth in an affidavit by FREDERICK J. MAYWALD, a consulting chemist in rubber manufacture, who emphasizes the detriment that would result to this great industry by a curtailment of the supply (Trans., pp. 30, 31).

In demonstration that carbon black is the indispensable ingredient in the manufacture of printing inks, appellees presented, besides the affidavit of Mr. Smith, affidavits from four leading manufacturers of printing ink.

Philip Ruxton, president of the National Association of Printing Ink Makers—an association comprising the manufacturers of ninety per cent. of the printing ink made in the United States—deposes that "in the manufacture of newspaper inks carbon black made from natural gas is an essential ingredient. The rapid operations of the modern printing press require an ink that will flow freely, print quickly and leave an intensely black impression". He further avers that "no satisfactory substitute is available" and that "any restriction or curtailment of the output of carbon black presents the gravest cause for apprehension not only to the ink manufacturers, but to the publishers of newspapers and to the entire reading public." (Trans., p. 27).

James A. Ullman, former president of the National Association, deposes to the same effect (Trans., p. 28).

Henry J. Weber, president of the oldest printing ink establishment in America, says:

> "A pound of carbon black is sufficient to make nine pounds of ink, or enough to print approximately two thousand two hundred and fifty copies of an ordinary sixteen page newspaper. * * * No other kind of black possesses the requisite combination of qualities, i. e. intense blackness of color, great covering power and freedom of flow when mingled with oil, which are essential to meet the requirements of the modern rotary printing press." (Trans., p. 29).

Frederick H. Levey, also a manufacturer of ink, says "If the newspapers and other periodicals of the country are to be printed, it is absolutely essential that the printing ink manu-

facturers receive adequate supplies of carbon black" (Trans., p. 28).

Thus by irrefragable proof, which appellants made no effort to controvert, appellees established the unique usefulness of their product, not simply as an ordinary article of commerce, but as the indispensable adjunct of the modern rapid printing press.

While this evidence is somewhat derisively referred to in appellants' argument (Brief, pp. 43, 69) we submit that it is of the gravest import in determining whether the conversion of natural gas into a product so essential to civilization is a vain, useless or wasteful employment of natural resources.

Monetary Value of Carbon Black.

From the standpoint of price as well as general usefulness, appellees' affidavits fully sustain the averments of their bill that the value of their products exceeds the market value of the gas consumed.

Carbon black is worth ten cents per pound (Trans., p. 25). Gasoline is worth from twenty to twenty-five cents per gallon (Trans., p. 97).

Each thousand cubic feet of natural gas is therefore converted into gasoline of the value of four and two-tenths cents, and carbon black of the value of seventeen and one-half cents.

That the combined value of these products, or the value of the black alone, far exceeds the price at which natural gas can be sold for fuel purposes is attested, not only by the statistics of the United States Geological Survey (Trans., p. 10) but by the affidavits of many local witnesses (Croft, p. 94, Taggart, p. 104, Torjuson, p. 105, Vaterlaus, p. 106, Welch, p. 107, Wright, p. 110, Willis, p. 111).

IMPRACTICABILITY OF HEAT UTILIZATION.

To demonstrate the impossibility of actually and fully utilizing the heat, appellees showed first that their factory is located in a thinly populated region about a mile and a half from Conley, which is a town of one thousand inhabitants, and is already supplied by the appellees with natural gas. There is no other manufacturing plant within a distance of several miles. The only residences in three square miles surrounding the factory are a few dwellings built by the company for its own workmen (Trans., p. 54).

Expert evidence was next presented showing that neither in the manufacture of carbon black from natural gas, nor in the similar processes of manufacturing lamp black from oil, or bone black from bones, has a method of making any use of the heat ever been discovered. (Trans., pp. 26, 27, 31, 32, 98, 99).

GEORGE C. LEWIS, a manufacturer of wide experience, deposes:

> "While carbon black, lamp black and bone black are distinct products, they have this in common, that the manufacture of each involves the consumption of fuel and the generation of heat. In making carbon black natural gas is burned. In making lamp black oil is burned. In calcining animal bones coal is ordinarily the fuel used. In none of these processes, however, as now or heretofore employed either in the United States or in Europe, is the resultant heat utilized.
>
> The problem of heat utilization is not a new one nor it is by any means peculiar to these lines of manufacture * * *. Any step toward its solution would be of vital importance to manufacturers of lamp black, whose factories are generally located

in proximity to populous cities such as London, Manchester, Newcastle-on-Tyne, Edinburgh, Cologne, Berlin, Paris, Boston, Philadelphia and Cleveland. Yet no lamp black manufacturer has yet been able to devise any practicable method of making any utilization of the heat generated as an incident to such manufacture." (Trans., p. 31).

Next it is shown that the requirement that the heat contained in the gas shall be "actually and fully" used for other purposes is unreasonable and impossible for the further reason that practically all attempts to use heat result in the actual utilization of only a small fraction of the potential heat of the fuel.

Bradley W. Rumbarger, a chemist formerly employed by the United States Government in research upon natural gas, states:

"In the consumption of fuels, for light or power, such losses of heat range from sixty per cent. (60%) to ninety-nine and five-tenths per cent. (99.5%).

In the ordinary form of lava-tip gas burner, generally used for illumination, the light obtained is yellowish and unstable. Ninety per cent. (90%) of the lighting efficiency and at least ninety-nine and five-tenths per cent. (99.5%) of the heating value of the gas consumed is lost. The other type of burner, known as the incandescent mantle lamp, is somewhat better as to light efficiency, but against most of the heating power of the gas is not utilized. (Trans., p. 46). * * *.

Dr. Steinmetz, Chief Engineer of the General Electric Company, has estimated that the most modern type of incandescent electric light bulb ultimately and actually utilizes only about three per cent. (3%) of the heat of the fuel employed, while the old fashioned carbon filament bulb uses only

> one per cent. (1%), the losses in these cases again being in the form of unutilized heat" (Trans., p. 49).

Mr. Rumbarger also presents tables from standard treatises showing that the actual percentage of heat utilized in various types of gas engines ranges from six to twenty-five per cent. (Trans., p. 48), in pumping plants from seven to twenty-nine per cent. (Trans., p. 49), and in steam engines of various types from eight to twenty-five per cent. (Trans., p. 47).

After giving many other examples, he concludes (Trans., p. 50):

> "These examples, which might be multiplied indefinitely, demonstrate the impossibility, in the present state of human knowledge, of fully utilizing in manufacture the heat contained in fuel. If the true test of the waste of gas or any other fuel be whether or not the heat therein contained is fully utilized, it would follow that practically every industrial use of fuel must be characterized as wasteful."

W. S. Hoskins, a carbon black manufacturer of thirty years experience, says:

> "To utilize all the heat contained in natural gas would necessarily consume all the carbon contained in the gas, and thereby make it impossible to manufacture the carbon black" (Trans., p. 98).

Irreparable Injury.

Both the bill of complaint (Paragraphs 16th, 19th, Trans., pp. 10, 12, 13) and the affidavits (Trans., pp. 54-6) contain persuasive allegations of the irreparable injury that will be occasioned to the appellees by the enforcement of the statute.

Gas Resources of Big Horn County.

While not essential to their case, the appellee's submitted convincing evidence showing that besides ample coal deposits (Tran., p. 99) the State of Wyoming in general, and Big Horn County in particular, possess a gas supply far in excess of what can be marketed or sold.

Dr. Frederick J. Pack, professor of geology in the University of Utah, and intimately conversant with Wyoming gas fields, estimates the daily capacity of the wells in this field at from one hundred and seventy-five to two hundred million cubic feet, and in the entire state at an amount in excess of six hundred and fifty million cubic feet (Trans., p. 51). Speaking of these fields, he says:

> "It is my opinion that their development has scarcely more than commenced, and that their potential productive capacity far exceeds the capacity of the wells now drilled. This opinion is shared by other geologists and producers of natural gas" (Trans., p. 51).

Dr. Pack further testifies that the wells from which appellees draw gas "were capped and shut in on account of the inability of said company to dispose of or market gas therefrom for several years prior to the time that supply of gas therefrom to the Midland Carbon Company was commenced." (Trans., p. 51).

The affidavit of Victor Cotsee shows that the structure on which appellees' gas wells are located is a very large one, extending twelve miles to the west and south, and including over fourteen thousand acres of "withdrawn" land, and that a large part of the structure is still undrilled. (Trans., pp. 91-2).

The affidavit of W. S. Hoskins (Trans., p. 53) enumerates wells in this structure, now capped and shut in, which are capable of producing one hundred and seven million cubic feet per day.

Two of these wells, recently drilled, show a pressure of six hundred and forty pounds per square inch (Trans., pp. 92, 96) and an open flow capacity of eighty million cubic feet per day (Trans., p. 53).

Appellants' Affidavits.

The appellants set forth what they deem to be the facts established by the answer and affidavits submitted in their behalf. These matters seem to us to be stated quite favorably to their contentions as compared with the actual answer and affidavits.

Without attempting a counter-summary, brief allusion will be made to certain points.

Some reliance is apparently placed on the contention that appellees will suffer little or no harm by enforcement of the statute since their factory is "readily removable" without loss save the "cost of transportation" (Brief, pp. 20, 21; Answer, paragraph 16, Trans., p. 61). Elsewhere their business is called a "tramp industry" (Brief, p. 15; Answer, paragraph 16, Trans., p. 61).

Even if it were "itinerant" that would not deprive those conducting it of their constitutional rights. In fact, appellees' equipment includes a factory site of twenty-four acres, ninety steel buildings having an aggregate floor area of three acres, a warehouse, three packing houses, twelve workmen's dwellings, a railroad siding, and six miles of eight inch pipe line (Trans., pp. 2, 40). They own gas lands in fee as well as their factory

site (Trans., p. 5). The claim that such an establishment can be dismantled and re-erected, without cost except for transportation savors of frivolity. The salvage value of the factory would not exceed half the original cost (Trans., p. 97).

Next it is asserted that carbon black can be made from artificial illuminating gas.

The proof establishes, however, that this would be impossible on account of the low yield, immense investment, prohibitive cost and immoderate coal consumption.

> "I have personally investigated this whole subject. About the year 1912, a series of experiments were conducted by me and under my personal supervision with a view to determining whether under any circumstances such manufacture would be practicable.
>
> In these experiments, the artificial illuminating gas supplied to residents of the cities of Philadelphia and New York was used.
>
> Said experiments demonstrated that the yield of carbon black per thousand cubic feet was only about one-fifth of that obtained from natural gas. In other words, a factory consuming five million cubic feet of natural gas per day would consume over twenty-five million cubic feet of such artificial gas to obtain the same daily production.
>
> Of course no gasoline would be recoverable from artificial illuminating gas so used.
>
> As such artificial gas costs in the neighborhood of eighty cents per thousand cubic feet, it would in my opinion be impossible to produce black from it at a cost of less than two dollars per pound. * * *
>
> The manufacture of black from any artificial gas has never to my knowledge been commercially undertaken in the United

> States, but has several times been attempted in Europe and in every instance has been soon abandoned as impracticable."
> (Affidavit of George C. Lewis, Trans., pp. 102-103).

These statements are corroborated by comparative analyses of natural and artificial gas (Trans., pp. 102-3. See also affidavit of Edwin Binney, Trans., p. 87).

It is stated in appellants' brief, on the authority of one Richardson, that the quantity of natural gas consumed in this field for carbon black manufacture is eleven million cubic feet per day (Brief, p. 21, Trans., p. 69).

The actual amount, as testified by the manager of the plant, does not exceed seven million cubic feet (Trans., p. 99).

Most of the affidavits read by the appellants relate to anticipated demands for natural gas on the part of existing or prospective industries in the rival town of Lovell, or to the alleged depletion of wells in the field.

Several of these affidavits predict the complete exhaustion of the wells by "next spring" (i. e., the spring of 1920)—(Trans., p. 84) or "within a year" (Trans., p. 69) or, according to another witness "within sixteen months" (Trans., p. 73).

The predictions so prominently quoted in appellants' brief have certainly not been justified by subsequent events.

The inferences of depletion are sharply controverted by the testimony of geologists (Dr. Pack, Trans., p. 51; Hopkins, p. 95) and operators familiar with the field (Cotner, Trans., p. 91; Hoskins, pp. 52-53, 96-98) as well as by the history of other fields (Curtze, Trans., pp. 113-4; Binney, p. 88).

Thus, it is shown that the field is an extensive

one, still only at the inception of its development and that the contour and formations indicate an "ideal reservoir of large capacity" (Trans., p. 92).

It is shown that the wells already drilled are capable of furnishing far more gas than can be marketed (Trans., pp. 51, 53).

While enormous losses from leaking wells have occurred (Trans., pp. 96, 98) it is shown that the rock pressure of the field, as distinguished from the pressure of wells in constant use, has not been appreciably diminished.

> "Affiant further says that he has tested within the last three months the rock pressure at the Carter Oil Company's well, which is drilled in the same field at a distance of about one mile from the well of the plaintiffs in the same sand and in the same field, and found the rock pressure in said Carter Oil Company's well to be six hundred and forty pounds per square inch, indicating that the pressure in the field has not been at all reduced. Likewise the Allen Oil Company has drilled a gas well during the last summer about a quarter of a mile from the Carter Oil Company well, and the pressure of the Allen well is likewise about six hundred and forty pounds per square inch."
>
> (Affidavit of W. S. Hoskins, Trans., p. 96).

The two wells referred to are two of those mentioned in Mr. Hoskins' earlier affidavit (Trans., p. 53) as capped and shut in, and each capable of producing forty million cubic feet per day.

> (See also affidavit of Victor Cotner, Trans., p. 92).
>
> "It is not true that a decrease in pressure in a well, even amounting to dividing

the pressure by two, in the first two years of the active use of such well, indicates that the well will be exhausted within another two years if such use is continued. And further affiant says that such a reduction in a single well does not indicate that the pressure in the field, covering several square miles or any large area, would be equally reduced."

(Affidavit of Maurice Hopkins, Trans., p. 95).

"It is a matter of common experience for particular wells to become diminished or exhausted and for the loss to be made good, or more than made good, by the drilling of new wells in the same field. Particularly is this true in new and slightly developed fields, where only a comparatively few wells have been drilled, as is the case in the Big Horn Basin.

In practical operations for natural gas in reasonably productive areas, one well may on the average be drilled to every ten acres of land."

(Affidavit of F. F. Curtze, Trans., p. 113).

It is admitted by the appellants that the open flow capacity of the wells already drilled in the field is two hundred million cubic feet per day (Trans., p. 69) and that the total consumption by all users does not exceed fifteen million cubic feet per day (Trans., p. 69).

In other words, even accepting the appellants' exaggerated estimate of the quantity consumed by appellees, the total consumption by all parties admittedly does not exceed seven and one-half per cent of the capacity of existing wells.

It is not disputed that from twenty to twenty-five per cent. of the open-flow capacity represents ordinary and reasonable operating practice. (Trans., p. 114).

Certainly seven and one-half per cent of the

natural flow does not constitute immoderate appropriation.

Certain Uncontroverted Facts.

It is noteworthy that appellants did not by affidavit or otherwise, controvert any of the following matters:

1. That appellees had, prior to the enactment of the statute, made an investment in the business of manufacturing carbon black of nearly seven hundred thousand dollars, as alleged.

2. That the factory of the appellees is the most efficient and economical in process, equipment and operation, and yields the largest amount of merchantable black that can be produced by any known method.

3. That the market price and value of the products gasoline and carbon black exceed the market price and value for any other purpose of the natural gas consumed to make them.

4. That carbon black made from natural gas is not only useful but indispensable for the manufacture of the printing inks required by the high-speed presses now in use, and its place can be supplied by no substitute.

5. That it is further a necessity for various manufactures of rubber, for carbon papers, typewriter ribbons, phonograph records and many manufactured articles of universal daily use.

6. That it is impossible so to use gas in manufacturing carbon black that the heat contained in the gas shall be "fully and actually used for other manufacturing purposes or domestic purposes."

7. That the manufacturing operations of the appellees are so conducted as to cause no injury to the health, morals or comfort of anybody.

8. That the inevitable effect of the statute is not only to require the Midland Company to cease operating said factory, but to render it impossible to sell or use any gas derived from the wells of the Occidental Company for the manufacture of carbon black at any time or place.

9. Nor is there the slightest attempt to prove that anyone of the "incorporated towns" or "industrial plants" owns any interest whatever in the gas wells or gas lands located within a radius of ten miles outside their boundaries. In other words, the showing is that the statute, instead of conserving gas for the reasonable use of all the collective owners of the lands under which it lies, seeks to appropriate the gas—or what appellants term a "paramount right" thereto,—for the benefit of certain communities and industries in the vicinity of the gas wells, and to deprive the owners of these gas lands and wells of the right to use or sell the gas they reduce to possession in the manner that will produce the best return to the owners and the greatest benefit to the public at large, viz., for the manufacture of carbon black.

Some Misconceptions of the Appellants.

It seems to be argued that because of the use of natural gas for carbon black "is a departure from all known uses," the business is therefore to be regarded as in some sense an outlaw or "tramp," not to be received in the category of legitimate manufacturing enterprises.

The record discloses, without denial, that the manufacture of carbon black from natural gas

has been conducted since 1864. There is nothing in the record to show that natural gas was used for heating or lighting prior to that time.

But should it be admitted that other uses of natural gas preceded its use for carbon black manufacture, what bearing would that have on the case at bar? Is every new use of property by its owner to be prohibited merely because it is new?

Nor is it at all a departure from known uses of fuels in the sense that the object sought is something other than light, heat or power. To state a few elementary examples, paper, charcoal and acetate of lime are made from wood. Oil is used in printing ink, as a lubricant, and for the manufacture of lamp black. From natural gas, besides carbon black, amyl-acetate, carbon tetrachloride, and many other materials are produced. In countless instances the heat of fuel is sacrificed in order to obtain some other product.

Again, counsel assume that because the police power of a state is very broad and may be used for the protection of the health, comfort, morals, safety and order of the community, the state has the right to seize the property of any citizen, without compensation, if by so doing the wealth or prosperity of certain towns or manufacturing establishments in the vicinity can be increased.

In the case at bar the property seized is not the property of the towns at all, but it is property outside the towns, which is seized, without price, in order to prosper the towns or industrial plants therein.

In support of their broad conclusion appellants quote many general expressions from decisions of this Court. Of course each of these general expressions must be considered in the light of the

facts in the case there under consideration. Without attempting to review all the authorities cited and quoted, we shall point out just what was involved in the principal ones, so that the meaning of the general expressions may be determined from the facts.

Gundling vs. *Chicago* (177 U. S., 183) concerned an ordinance of the city of Chicago forbidding the sale of cigarettes without a license.

The *Slaughter House Cases* (83 U. S., 36) involved the suppression of nuisances. The slaughter houses were not nuisances *per se* but had become nuisances at the place where located because of the growth of the city.

In *Webber* vs. *Virginia* (103 U. S., 344), the plaintiff successfully challenged a statute of Virginia which required the agent for articles manufactured in other states to obtain a license and pay a specific tax for each county in which he should sell or offer to sell, while the agent for articles manufactured in Virginia was not required to obtain a license or pay the tax.

Escanoba vs. *Chicago* (107 U. S., 678) was an action by a transportation company to enjoin the city from closing the draws of its bridges at certain hours, and to compel the removal of the objectionable piers and bridges. The court held that until Congress should act, the state had plenary authority over its bridges across the rivers, and might vest in Chicago jurisdiction over the construction, repair and use of the bridges within the city.

Barbier vs. *Connolly* (113 U. S., 27) involved a municipal ordinance of San Francisco prohibiting night work in laundries in certain sections of the city.

Western Union Tel. Co., vs. *Pendleton* (122 U. S., 347) held invalid because interfering with interstate commerce a statute of Indiana requiring delivery of dispatches by messenger to persons within one mile of the telegraph station in other states. At the same time the court held that the state may make such reasonable and necessary provisions in respect of buildings, poles and wires of telegraph companies within the state as may be required for the public comfort and convenience.

Eubank vs. *Richmond* (226 U. S., 137) held invalid an ordinance of the City of Richmond which put it into the power of the owners of two-thirds of the property abutting on any street to fix a "set back" line beyond which no building should extend. In speaking of the police power, the court took occasion to say "But necessarily it has its limits and must stop when it encounters the prohibitions of the Constitution."

Jacobson vs. *Massachusetts*, (197 U. S., 11) sustained an act requiring vaccination for the protection of the public health.

McLean vs. *Arkansas* (211 U. S., 539) considered a law of Arkansas requiring that operators of coal mines, in ascertaining the pay due to miners, should measure the coal as it ran in production.

Williams vs. *Arkansas* (217 U. S., 79) upheld a statute preventing hotel drummers, etc., from plying their vocations on trains.

Watson vs. *Maryland* (218 U. S., 173) required the registration of medical practitioners.

Schmidinger vs. *Chicago* (226 U. S., 578) called in question an ordinance regulating the weight of

loaves of bread sold or exposed for sale in the city.

Minneapolis etc. R. Co. vs. *Beckwith* (129 U. S., 26) sustained a statute requiring the railroad company to fence its tracks and allowing the recovery of double values for property destroyed because of the failure to fence.

Missouri Pac. R. Co. vs. *Humes* (115 U. S., 512) involved a similar statute.

Dent vs. *West Virginia* (129 U. S., 114) dealt with acts fixing the qualification of practitioners of medicine.

In *M. K. & T. Ry. Co.* vs. *May* (194 U. S., 267) the subject matter was a law penalizing railroad companies for permitting the Russian thistle to grow and seed along the track, thus spreading the seed over the agricultural lands of the state.

Chicago, Burlington & Quincy R. R. Co. vs. *McGuire* (219 U. S., 549) upheld a statute prohibiting contracts with employees by which the liability for injuries to employees was limited.

In *Hayes* vs. *Missouri* (120 U. S., 68) the law under consideration provided that in cities of over one hundred thousand the state should have fifteen peremptory challenges in certain trials for felony while elsewhere the number of challenges was limited to eight.

In *Fertilizing Co.* vs. *Hyde Park* (97 U. S., 659) a nuisance of a flagrant character existed arising from the manufacture within municipal limits of fertilizers from offal and dead animals.

We have thus stated the subject-matter of all the decisions of this Court quoted in pages 44 to 66 of the appellants' brief.

The bare statement of the issues involved suf-

fices to show how remote is their application to the present controversy.

We now pass to the "illustrative cases" relied on as decisive.

The case of *Hudson Water Company* vs. *McCarter* (209 U. S., 349) arose on a statute preventing the carrying of the water from the Passaic River outside the State of New Jersey. In *Oklahoma* vs. *Kansas Natural Gas Company*, (221 U. S., 229) it was brought forward as an authority for contentions very similar to those of the present appellants and was thus explained by this Court (at page 258):

> "*Hudson County Water Co.* vs. *McCarter*, 209 U. S., 349, is urged, we have seen, on our attention. A statute of the State of New Jersey was involved, which made it unlawful for any person or corporation to transport or carry through pipes the waters of any fresh-water lake, river, etc., into any other State for use therein. Two propositions may be said to be the foundation of the decision of the court below sustaining the statute. (1) 'The fresh-water lakes, ponds, brooks and rivers, and the waters flowing therein, constitute an important part of the natural advantages of the State, upon the faith of which its population has multiplied in numbers and increased in material welfare. The regulation of the use and disposal of such waters, therefore, if it be within the power of the State is among the most important objects of government.' (2) 'The common law recognized no right in the riparian owner, as such, to divert water from the stream in order to make merchandise of it, nor any right to transport any portion of the water from the stream to a distance for the use of others.' It was further declared that the common law authorized the acquisition of water 'only by riparian

owners and for purposes narrowly limited. Not that the ownership is common and public.' And the contention was rejected that the title of the individual riparian owner was to the water itself—the fluid considered as a commodity—and exclusive against the public and against all persons excepting other riparian owners.

"It is clear that neither of these propositions will support the contentions of the appellant in the case at bar. Nor does any principle announced upon the review of the case here, though the power of the State to enact the statute was put 'upon a broader ground than that which was emphasized below.' The police power of the state was discussed and the difficulty expressed of fixing 'boundary stones between' it and the right of private property which was asserted in the case. There were few decisions, it was said, that were very much in point. But certain principles were expressed, of which *Geer* vs. *Connecticut*, 161 U. S., 519, was considered as furnishing an illustration and *Kansas* vs. *Colorado*, 185 U. S., 125, and *Georgia* vs. *Tennessee Copper Co.*, 206 U. S., 230, some suggestions.

"That principle was that it was for the 'interest of the public for a State to maintain the rivers that are wholly within it substantially undiminished, except by such drains upon them as the guardian of the public welfare may permit for the purpose of turning them to more perfect use.' And this principle was emphasized as the one determining the case and the opinion expressed that it was 'quite beyond any rational view of riparian rights that an agreement of no matter what private owners, could sanction the diversion of an important stream outside of the boundaries of the State in which it flows. The private right to appropriate is subject not only to the rights of the lower owners but

> to the initial limitation that it may not substantially diminish one of the great foundations of public welfare and health.'
>
> "It is hardly necessary to say that there was no purpose in the case to take from property its uses and commercial rights or to assimilate a flowing river and the welfare which was interested in its preservation to the regulation of gas wells, or to take from the gas when reduced to possession the attributes of property decided to belong to it in *Ohio Oil Co.* vs. *Indiana,* and recognized in *Lindsley* vs. *Natural Gas Co.* Indeed, pains were taken to put out of consideration a material measure of the benefits of a great river to a State. And surely we need not pause to point out the difference between such a river flowing upon the surface of the earth and such a substance as gas seeping invisibly through sands beneath the surface."

In *Bacon* vs. *Walker* (204 U. S., 312) a statute was examined which limited the herding and grazing of sheep *on the public domain* within two miles of the dwellings of others than the sheep-owners. As will clearly appear from the case, and especially from the two Idaho cases cited in the opinion, one ground of sustaining the statute was that herding sheep close to the habitation of a settler is a nuisance. As said by the Supreme Court of Idaho in the case of *Sweet* vs. *Ballentine,* 8 Ida., 431 (which is cited in the opinion of this court) the settler

> "may be damaged by having to smell dead sheep, or by having to use water polluted by them, or by actual injury to his own land or improvements by reason of sheep being grazed or herded thereon. The smell of sheep is offensive to many persons, and especially so where they are herded in large bands. Our legislature, in

> section 3620, Rev. St., 1887, has defined a nuisance as follows: 'Anything which is injurious to health or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property,' etc. If large bands of sheep are permitted to be herded or grazed around the yards and homes of settlers, it would certainly interfere with their comfortable enjoyment of life and property."

It was further emphasized that the plaintiff was not the owner of the lands affected, and that

> "These statutes were not intended to prevent owners from grazing sheep upon their own lands, although situated within two miles of the dwelling of another."

Next the case of *Hadacheck* vs. *Los Angeles* (239 U. S., 394) is confidently presented as "negativing all the contentions of the complainants." (Brief, p. 69).

The case arose in *habeas corpus* proceedings, permitting a necessarily limited review of the issues of fact. It is true that the petitioner alleged in his petition that the brick-yard which he was conducting within the limits of the city was "so conducted as not to be in any way or degree a nuisance; no noises arise therefrom, and no noxious odors," etc. But the Court pointed out:

> "There was a denial of the allegations that the brick-yard was conducted or could be conducted sanitarily or was not offensive to health. And there were affidavits supporting the denials. In these it was alleged that the fumes, gases, smoke, soot, steam and dust arising from petitioner's brick-making plant have from time to time caused sickness and serious discomfort to those living in the vicinity."

The opinion proceeds:

> "Considering the allegations of the petition, the denials of the return and the evidence of the affidavits, the court (Supreme Court of California) said that the latter tended to show that the district created had become primarily a residential section and that the occupants of the neighboring dwellings are seriously incommoded by the operations of petitioner; and that such evidence, when taken in connection with the presumptions in favor of the propriety of the legislative determination, overcame the contention that the prohibition of the ordinance was a mere arbitrary invasion of private right, not supported by any tenable belief that the continuance of the business was so detrimental to the interests of others as to require suppression."

It is manifest, then, that the suppression of the brick-yard was sustained on the ground that it had become a nuisance. Of course it was not a nuisance *per se*, but had become so because the residential district of the city had extended around it.

The appellants make a queer application of that case, quoting from it the following:

> "There is no prohibition of the removal of the brick clay; only a prohibition within the designated locality of its manufacture into bricks."

This extract they paraphrase as follows (Brief, p. 72):

> "There is no prohibition of the removal of the gas; only a prohibition within a designated locality of its manufacture into carbon black, and this prohibition is relieved upon condition."

If we understand the situation in the *Hada-*

check case, the owner of the brick yard was still permitted to extract the clay from that particular yard and use it in making brick at any place where his operations would not be a nuisance. And on that very ground the Court distinguished *in re Kelso* (147 Cal., 609).

In the case at bar, the place of the manufacture of carbon black is not at all fixed by the statute. The thing that is fixed is the place from which the gas is withdrawn. So far as the statute is concerned, the operation of manufacturing carbon black may be carried on anywhere within any city or town, provided only the supply of gas is brought from some place more than ten miles away from the town or from any "industrial plant."

In the *Hadacheck* case the property—the clay—was left to the owner. His operations deleterious to health were required to be removed. Here there is no pretense that the operations are deleterious to health or in any way a nuisance. Appellees are not left the ownership of the right to use the property—the gas—provided they move the factory farther away. On the contrary, it is the use of the property itself which is denied them. No objection is made to the location of the factory.

Murphy vs. *California* (225 U. S., 623) considered an ordinance which prohibited the keeping or maintaining of billiard halls in South Pasadena. This Court uses the following language in the opinion (p. 629):

> "Playing at billiards is a lawful amusement; and keeping a billiard hall is not, as held by the Supreme Court of California on plaintiff's application for *habeas corpus*, a nuisance *per se*. But it may become such; and the regulation or prohibition need not

be postponed until the evil has become flagrant.

"That the keeping of a billiard hall has a harmful tendency is a fact requiring no proof, and incapable of being controverted by the testimony of the plaintiff that his business was lawfully conducted, free from gaming or anything which could affect the morality of the community or of his patrons * * *. The ordinance is not aimed at the game but at the place, and where, in the exercise of the police power, the municipal authorities determine that the keeping of such resorts should be prohibited, the courts cannot go behind their finding and inquire into local conditions; or whether the defendant's hall was an orderly establishment, or had been conducted in such manner as to produce the evils sought to be prevented by the ordinance."

Lawton vs. *Steele* (152 U. S., 140) was upon a statute regulating fishing in the waters of the State common to all.

City of La Harpe vs. *Elm Township Gas Co.*, (69 Kan., 97) had no relation to the rights of the owners of natural gas property. The regulation there was the regulation of the right to lay pipes for distribution of natural gas in the streets of the City of La Harpe.

The other cases referred to in appellants' brief require no separate or additional comment.

Not one of the cases cited furnishes either authority or example upholding the right to take away property without price from any individual merely for the financial benefit of any other person or any number of persons, although such seems to be the deduction made from those cases.

Not one gives countenance to the claim that

natural gas, when reduced by the landowner to possession, is in any sense public property.

Not one asserts the power of the legislature to deprive the owner of natural gas lands of the right to sell in the best market, or to put to a use beneficial and necessary to society, such gas as naturally arises in his wells, merely in order that he may thereby be compelled to keep his gas till certain neighboring towns or factories desire it.

Each is within well-known principles governing the exercise of police power, and any general language used must be read in the light of the facts involved.

It is easy to give examples where even counsel would not contend that the mere welfare of communities or manufacturing establishments would authorize the taking of private property without compensation. For example, in the State of Colorado, the residence of counsel for appellants, there are many factories manufacturing beet-sugar. Such factories greatly aid the development of the towns in which located and increase the wealth and welfare of the state. These factories often have difficulty in obtaining beets sufficient in quantity for their operation. This is because farmers in the vicinity prefer to raise potatoes or other crops, insisting that since they can thus get a larger return from their land they will ignore the general benefit of the town and factory that would accrue from planting sugar-beets. No one would dream that a law would be constitutional forbidding the use for growing potatoes of farming lands within ten miles of a town having a beet-sugar factory. Yet in such a case it could plausibly be argued that the general welfare in the sense of the general prosperity of the

community would be advanced by obliging all farmers in the vicinity to raise sugar-beets.

Throughout the appellants' argument, the public welfare is treated as if it were a matter exclusively concerning those particular consumers of gas whom the statute benefits. To say nothing of other arts and industries, what of the fourteen billion newspapers and two hundred million books annually published in the United States? Is not the supply of the basic materials for diffusing knowledge a matter that touches the public welfare? "On the diffusion of education among the people rest the preservation and perpetuation of our free institutions."

JURISDICTION.

The bill alleges, (1) That the statute is unconstitutional; (2) that its enforcement will destroy valuable rights of property, and (3) that the effect of continuing business in disregard of its provisions will be to subject each appellee to repeated criminal prosecutions involving cumulative penalties at the possible rate of one thousand dollars per day.

The case thus presents every essential to Federal equity jurisdiction.

Ex parte Young, 209 U. S., 123;
Truax vs. *Raich*, 239 U. S., 33;
McFarland vs. *American Sugar Co.*, 241 U. S., 79;
Caldwell vs. *Sioux Falls*, 242 U. S., 559;
Dobbins vs. *Los Angeles*, 195 U. S., 223;
Hammer vs. *Degenhard*, 247 U. S., 251;
Oklahoma Operating Co., vs. *Love*. (Advance opinions No. 12, p. 383).

It does not follow that by calling the act a "conservation" measure, or by declaring the manufacture of carbon black from natural gas to be "wasteful" or "extravagant," the legislature has foreclosed judicial consideration of the subject.

In *Bunting* vs. *Oregon* (243 U. S., 426, 435) this Court said:

> "The legislative declaration of necessity even if the act followed such declaration, is not binding upon this court."

In *Coppage* vs. *Kansas* (236 U. S., 1) this language was used:

> "A statutory provision which is not a legitimate police regulation cannot be made such by being placed in the same act with a police regulation or by being enacted under a title that declares a purpose which would be a proper object for the exercise of that power."

This Court further said:

> "When a party appeals to this Court for the protection of rights secured to him by the Federal Constitution, the decision is not to depend upon the form of the law nor even upon its declared purpose, but rather upon its operation and effect, as applied and enforced by the State."

As so succinctly stated in the Passenger cases (7 How., 283):

> "Its true character cannot be changed by its collocation."

The principles governing inquiry into the propriety of the purported exercise of police power

were thus formulated long ago in *Lawton* vs. *Steele* (152 U. S., 133):

> "To justify the state in thus interposing its authority in behalf of the public, it must appear that the interests of the public generally, as distinguished from those of a particular class, require such interference; and second that the means are reasonably necessary for the accomplishment of the purpose, and not unduly oppressive upon individuals. The legislature may not, under the guise of protecting the public interests, arbitrarily interfere with private business or impose unusual and unnecessary restrictions upon lawful occupations. In other words, its determination as to what is a proper exercise of its police powers is not final or conclusive, but is subject to the supervision of the courts."

In a recent case, *Mountain Timber Co.* vs. *Washington* (243 U. S., 219), in examining the constitutionality of the Washington Workmen's Compensation Act, this Court indicated the tests to be:

> "1. Whether the main object of the legislation is or may reasonably be deemed to be of general and public moment rather than of private and particular interest so as to furnish a just occasion for such interference with personal liberty and the right of acquiring property as necessarily must result from carrying it into effect.
>
> 2. Whether the charges imposed upon employers are reasonable in amount, or on the other hand, so burdensome as to be manifestly oppressive.
>
> 3. Whether the burden is fairly distributed having regard to the causes that give rise to the need for the legislation."

The authorities quoted, as well as those cited below, fully establish not only that the true purpose and effect of the act as distinguished from its ostensible purpose, but also the reasonableness of the restrictions sought to be imposed, and the truth of the accusation of waste are all fully open to judicial review. In Chief Justice Marshall's words (*Marbury* vs. *Madison* 1 Cr., 137) the courts "are under a solemn duty to look at the substance of things whenever they enter upon the inquiry whether the legislature has transcended the limits of its authority."

Cook vs. *Burnquist*, 242 Fed., 321;
Yick Wo vs. *Hopkins*, 118 U. S., 356;
Holden vs. *Hardy*, 169 U. S., 366;
In re Jacobs, 98 N. Y., 98.

THE STATUTE ANALYZED.

It cannot be disputed that the business of manufacturing carbon black, a material essential to the printing of newspapers and to so many other purposes of general utility and value, is a long-established, necessary and legitimate one, neither noisome nor a nuisance, nor a detriment to "public health, morals or safety."

Indeed, no attack is made upon it on any of these grounds, nor does the statute attempt to prescribe any limitation as to the place where carbon black factories shall be located or maintained.

Thus the law itself excludes as without application those cases prominently cited in appellants' brief sustaining legislative power to prohibit the conduct in residential sections of noxious or unhealthful occupations.

The statute under consideration does not at-

tempt to deal with the escape of natural gas into the air.

It does not seek to prescribe for all landowners alike a limit as to the measure or proportion of the productive capacity of each well that shall be withdrawn or marketed.

It does not regulate the right of proportionate acquisition, nor restrain any of the collective owners from appropriating an undue or excessive quantity through the use of pumps or other artificial means of accelerating the natural flow.

What it does is, after the natural gas has been reduced to possession and has thus become a commodity of commerce, to divest it of one of the attributes of property, namely the right of disposal for an essential commercial purpose.

Concretely stated, it deprives the appellees altogether of the right to dispose of or use a single cubic foot of gas from their lands for the operation of their factory.

This it does by imposing conditions as to full utilization of heat which are impossible of fulfillment.

The prohibition is imposed not upon all land owners who derive their supply of gas from a common source or reservoir, but only upon those whose wells are located within ten miles of any incorporated town or industrial plant.

Each incorporated town and each private industrial plant (except that of the appellees), is thus surrounded by a circle or prohibited zone, whose area is three hundred and fourteen square miles.

Elsewhere the ban is inoperative.

What is the object of the ten mile limitation?

Admittedly, to benefit certain manufacturers and private consumers, who are or may become purchasers of natural gas, by depriving the own-

ers of the gas produced in certain large areas of the right of sale to certain other manufacturers. (See Appellants' Brief, pp. 44, 83, 87; Trans., pp. 66, 70, 79, 81).

NATURAL GAS NOT PUBLIC PROPERTY.

Even while citing *Ohio Oil Company* vs. *Indiana* (177 U. S., 190) appellants still seem to persist in the claim that natural gas is somehow public property, "the common heritage of all."

That case, were it not clear even without authority, should forever set the question at rest. The Court at page 209 uses this language:

> "In things *ferae naturae* all are endowed with the power of seeking to reduce a portion of the public property to the domain of private ownership by reducing them to possession. In the case of natural gas and oil no such right exists in the public. It is vested only in the owners in fee of the surface of the earth within the area of the gas field. This difference points at once to the distinction between the power which the lawmaker may exercise as to the two. In the one, as the public are the owners, every one may be absolutely prevented from seeking to reduce to possession. No divesting of private property, under such a condition, can be conceived because the public are the owners, and the enacting by the State of a law as to the public ownership is but the discharge of the governmental trust resting in the State as to property of that character * * * On the other hand, as to gas and oil, the surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property."

In *Oklahoma* vs. *Kansas Natural Gas Com-*

pany (221 U. S., 229, 254) this Court commenting on the case last cited said:

> "The statute of Indiana was directed against waste of the gas, and was sustained because it protected the use of all the surface owners against the waste of any. The statute was one of true conservation securing the rights of property, not impairing them. Its purpose was to secure to the common owners of the gas a proportionate acquisition of it, a reduction to possession and property, not to take away any right of use or disposition after it had thus become property. It was sustained because such was its purpose; and we said that the surface owners of the soil, owners of the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property. It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession they could not be deprived of any right which attached to it when in possession.
>
> "The Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do. It does not protect the rights of all surface owners against the abuses of any. It does not alone regulate the right of the reduction to possession of the gas, but when the right is exercised, when the gas becomes property, takes from it the attributes of property, the right to dispose of it; indeed, selects its market to reserve it for future purchasers and use within the State on the ground that the welfare of the State will thereby be subserved. The results of the contention repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land, and, when reduced to possession, is his individual property subject to sale by

him, and may be a subject of intrastate commerce and interstate commerce."

See also:—

Kansas Nat. Gas Co. vs. *Haskell*, 224 U. S., 217

This case affirmed *Kansas Nat. Gas Co.* vs. *Haskell* (172 Fed., 545). The opinion of the court below is also a lucid exposition of the right of property in natural gas.

It was said:

> "The contention of the defendants that the natural gas found within the territorial limits of the State is the common heritage of the people of the State, which may be conserved and preserved by the State as trustee of those things in which the people have a common interest, as flowing streams, wild animal life, etc., is unsound and must be denied.
>
> "He who by lawful right reduces to his possession mineral gas, or oil, has the same absolute right of property therein, with the same power of barter, sale or other disposition, including, of necessity, the right of transportation and delivery under such reasonable rules and safeguards as the exigencies of the case may demand and the state employ, as the farmer has of his corn, his wheat, or his stock, or the merchant of his wares, and such absolute right therein as the state cannot deny him without making just compensation, and any attempt to do so would be in violation of the Fourteenth Amendment."

In the case at bar not only are the appellees among the common owners because owners of lands in which the gas is found, but they have also become the owners in possession of the gas itself

as private property in the four wells here involved.

THE STATUTORY PURPOSE.

Like the Oklahoma statute, the Wyoming statute does exactly what the Indiana statute did not do, and omits precisely those things which were with such care included in the Indiana statute. The Wyoming statute entirely ignores the rights of the owners of the land in which the natural gas is found—the common owners of the gas. It makes no provision for their protection. It does not restrict the number of wells that may be drilled into the gas reservoirs, nor the amount of gas that may be withdrawn by one well or by any one owner, nor does it prohibit the discharge of the gas into the open air without making any use of it. And there is uncontradicted evidence in the record that such waste within the true meaning of that word is taking place.

> "I have also personally seen in the State of Wyoming during the present year operations for extraction of gasoline from natural gas being carried on upon a large scale at the rate of several million cubic feet per day, and the residue of the gas, after gasoline extraction being actually blown off into the open air, no means whatever being provided for the further utilization of said gas. I have also seen several wells in various sections of Wyoming during the present year left open, and the gas escaping freely therefrom into the atmosphere. These circumstances are referred to as showing the plentifulness of natural gas, and slight value placed thereon by operators in said State.
>
> "Such waste is very common in gas fields where there is no market for gas in commercial quantities, because it is, unfortunately, natural to disregard that

> which has little or no present value. It has invariably been my observation and experience that the carbon industry, by creating a market for natural gas in whatever regions it has located, has to a marked degree encouraged conservation and prevented waste, since a commodity which can be readily sold in substantial quantities is not as a rule neglected or wasted by the owner."
>
> (Affidavit of W. S. Hoskins, Trans., p. 53).

R. C. May of Lovell, who as a member of the Legislature introduced the bill, was used by the appellants as a witness. He testified:

> "My sole interest in this legislation was to conserve the gas resources of the state for the use of the people of the incorporated Cities and Towns thereof for domestic and industrial purposes." (Trans., p. 77. Also Appellants' Brief, page 25).

The act itself and the lips of him who introduced it speak the same language. There was no attempt so to restrict the use of the natural gas that an undue proportion thereof might not be taken by one of the common owners. No intention to prevent the waste of the gas by turning it loose into the open air without serving any purpose whatever. No purpose, in other words, such as enabled this Court to sustain the Indiana statute in the case of *Ohio Oil Company* vs. *Indiana, (supra)*.

On the contrary, the sole purpose was to select the market, to preserve the gas, not for the owners but for third parties, that is to say, for private industries and private consumers in incorporated towns.

The intent of the statute, as gathered from its

originator and from its language, was to take away certain rights to sell gas from the private owners of the gas and make a donation to that extent to certain towns and manufacturing establishments. The purpose is commercial—the business welfare of these towns and manufacturing plants, as coal might be, or timber. (*Oklahoma* vs. *Kansas Natural Gas Co.*, 221 U. S., at page 255).

In fact the record discloses that the commercial purpose was even narrower than a purpose to benefit incorporated towns or other manufacturing plants generally.

The factory of appellees is located "about one and one-half miles distant from the town of Cowley" (Trans., p. 2).

The wells supplying it are located about eight and one-half miles from the incorporated town of Lovell (Trans., p. 8).

The Lovell Gas & Electric Company, whose manager appears conspicuously among appellants' witnesses, draws gas from the same field. (Trans., p. 68).

The originator of the bill is a resident of Lovell (Trans., p. 77).

No one except the appellees is engaged in the manufacture of carbon black in the entire State of Wyoming (Trans., p. 8).

No one has ever been engaged in such manufacture anywhere in the State except one other manufacturer, who operated a small factory, also in the vicinity of Lovell. (Trans., p. 8). The other factory owned no gas wells or gas lands, and proved unprofitable, and so was sold to new owners and removed (Trans., pp. 97, 88).

The peculiar form of the statute renders it applicable to these appellees alone, while leaving

the door open for others to engage in similar manufacturing pursuits elsewhere in Wyoming.

The inference is clear that the spoliation of the appellees for the advantage of the residents and industrial plants of Lovell is the real object sought.

As remarked by this Court in *McFarland* vs. *American Sugar Company* (241 U. S., 79) where the law was a bill of pains and penalties disguised in general words, "so much the worse for the constitutionality of the statute."

As might be expected, the affidavits submitted by the appellants are chiefly by citizens of Lovell.

On the other hand seventy-six residents of Cowley testify that an enforcement of the law would cause a removal from their town of their only large industries, which have been the chief factors in building up the town, which were the first to supply the town with natural gas and which provide steady employment for many men. (Trans., pp. 107-109, 112). And seven other affidavits from residents of Cowley containing other matters in favor of the appellees are in the record. (Trans., pp. 86, 94, 100, 101, 104, 106, 107).

Of course neither the fact that the citizens of Lovell desire enforcement of the statute so that they may have the gas for the new manufacturing enterprises coming to their town nor the fact that the citizens of Cowley are equally insistent that the statute shall not be enforced, as such enforcement would destroy their chief industries, is here controlling. It nevertheless illustrates the situation.

Whether the purpose is the mere local one of benefiting manufacturing establishments at Lovell, or whether it is the general purpose to benefit manufacturing establishments in incorporated towns wherever like conditions may exist,

the purpose is nevertheless to procure direct benefit to such manufacturing establishments by furnishing fuel which they call cheaper than coal, for a long time, and thus indirectly to build up the towns where these manufacturing enterprises may be established. There is nothing in the statute or in the evidence here, or even in the answer, which in the remotest degree hints any other purpose.

The statute thus takes private property for private use under pretext of the public good.

These purposes are not even public purposes such as would authorize the exercise of eminent domain to take the property of the appellees in their gas, nor yet public in such sense as would authorize any taxes therefor to be levied upon the property here involved even if it were located in one of the towns receiving the indirect benefits.

> "The general grant of legislative power in the Constitution of a State does not enable the legislature, in the exercise either of the right of eminent domain, or of the right of taxation, to take private property, without the owner's consent, for any but a public object. Nor can the legislature authorize counties, cities or towns to contract, for private objects, debts which must be paid by taxes. It cannot, therefore, authorize them to issue bonds to assist merchants or manufacturers, whether natural persons or corporations, in their private business. These limits of the legislative power are now too firmly established by judicial decisions to require extended argument upon the subject.
>
> "In *Loan Association v. Topeka*, 20 Wall., 655, bonds of a city, issued, as appeared on their face, pursuant to an act of the legislature of Kansas, to a manufacturing corporation, to aid it in establishing shops in the city for the manufacture of iron bridges were held by this court to be void, even in

the hands of a purchaser in good faith and for value. A like decision was made in *Parkersburg* vs. *Brown*, 106 U. S., 487. The decisions in the courts of the States are to the same effect. (Citing cases). * * *

"The express provisions of the Constitution of Missouri tend to the same conclusion. It begins with a Declaration of Rights, the sixteenth article of which declares that 'no private property ought to be taken or applied to public use without just compensation.' This clearly presupposes that private property cannot be taken for private use. *St. Louis County Court* vs. *Griswold*, 58 *Missouri*, 175, 193; 2 Kent. Com. 339 note, 340. Otherwise, as it makes no provision for compensation except when the use is public, it would permit private property to be taken or appropriated for private use without any compensation whatever. It is true that this article regards the right of eminent domain, and not the power to tax; for the taking of property by taxation requires no other compensation than the taxpayer receives in being protected by the government to the support of which he contributes. But, so far as respects the use, the taking of private property by taxation is subject to the same limit as the taking by the right of eminent domain. Each is a taking by the state for the public use, and not to promote private ends."

Cole vs. *La Grange*, 113 U. S. 1, 6.

Missouri Pac. R. Co. vs. *Nebraska*, 164 U. S., 403;

Missouri Pac. R. Co. vs. *Nebraska*, 217 U. S., 196;

Michigan Sugar Co. vs. *Dix*, 124 Mich., 674;

Dodge vs. *Mission Township*, 107 Fed., 827;

Oxnard Beet Sugar Co. vs. *Nebraska*, 73 Neb., 57.

The Constitution of the State of Wyoming contains provisions similar to that adverted to in the opinion just quoted.

> "Sec. 32. Private property shall not be taken for private use unless by consent of the owner, except for private ways of necessity, and for reservoirs, drains, flumes, or ditches on or across the lands of others for agricultural, mining, milling, domestic or sanitary purposes, nor in any case without due compensation."
>
> "Sec. 33. Private property shall not be taken or damaged for public or private use without just compensation."
>
> Wyoming Constitution Article I, Sections 32 and 33.

THE STATUTE TAKES PROPERTY.

The statute here in controversy takes property, since it forbids sale and use, although such sale and use in no way create or contribute to any nuisance or injury to the health, morals or comfort of any one.

And the sale and use prohibited, under the evidence, is without question the most profitable sale and use that can be made of the gas, and the one most beneficial to the world and to civilization.

As stated by Chancellor Kent (2 Com., 320),

> "The exclusive right of using and transferring property follows as a natural consequence from the perception and admission of the right itself."

Or as stated by the New York Court of Appeals:

> "Whenever a law deprives the owner of the beneficial use and free enjoyment of his property or imposes restraints upon such use and enjoyment that materially affect its value, without legal process or compen-

sation, its deprives him of his property within the meaning of the Constitution."

Litchfield vs. *Bond*, 186 N. Y., 66, 80.

Or as stated by this Court:

"The police power, broad as it is, cannot justify the passage of a law or ordinance which runs counter to the limitations of the Federal Constitution; that principle has been so frequently affirmed in this court that we need not stop to cite the cases.

The Fourteenth Amendment protects life, liberty and property from invasion by the States without due process of law. Property is more than the mere thing which a person owns. It is elementary that it includes the right to acquire, use and dispose of it. The Constitution protects these essential attributes of property."

Buchanan vs. *Warley*, 245 U. S., 60, 74.

In re Kelso (147 Cal., 609) involved the validity of a municipal ordinance prohibiting the taking of rock from a quarry within the limits of the City of San Francisco. The court declared it unconstitutional, because its effect was

"to deprive the owners of real property within such limits of a valuable right incident to their ownership, viz., the right to extract such rock and stone as they might find it to their advantage to dispose of."

The court also said:

"A limitation of the use *pro tanto* deprives him of the enjoyment thereof, and any arbitrary action in this regard is a taking of private property without due process of law. While in the exercise of the police power the state may limit or regu-

late the use, any such limitation or regulation must find its justification in the necessity for the protection of the legal rights of others. If it does not, it is an unwarrantable invasion of the property rights, against which the courts will protect."

The statute "does not alone regulate the right of the reduction to possession of the gas, but when the right is exercised, when the gas becomes property, takes from it the attributes of property, the right to dispose of it."

Oklahoma vs. *Kansas Nat. Gas Co.*, 221 U. S., 229, 254.

So, too, the deprivation of the right to use the factory, or the imposition of restraints rendering such use impossible, is a taking of property in as real a sense as if the factory were physically appropriated.

Dobbins vs. *Los Angeles*, 195 U. S., 223;
In re Smith, 77 Pac. Rep., 180.

See also:

Forster vs. *Scott*, 136 N. Y., 577;
Peo. vs. *Otis*, 90 N. Y., 48;
Pumpelly vs. *Green Bay Co.*, 13 Wall., 166;
Kansas City Nat. Gas Co. vs. *Kansas City*, 198 Fed., 500.

AN ILLUSORY PERMISSION.

The impossibility of compliance with the provision of the law relating to heat utilization has been demonstrated in an earlier portion of the argument.

Summarizing what was there said, the proof establishes:

First, that appellees' factory is built in a thinly populated region and so located that no opportunity to furnish heat for manufacturing or domestic purposes exists.

Second, that neither in the manufacture of carbon black, nor in the kindred processes of making lamp black and bone black, has any method of making use of the heat ever been discovered.

Third, that fully to utilize the heat would necessarily require complete combustion of all the carbon and thereby render it impossible to save any carbon black.

Fourth, that in any event such a thing as full utilization of heat is impossible, the losses varying from seventy-five to ninety-nine per cent. in the different engines and appliances directly using fuels in the production of light or mechanical power.

These things are not denied by the defenders of the statute, who, while remarking that the prohibition is "relieved upon condition," neither allege nor attempt to prove that any way of complying with the condition is practicable or possible.

When the statute says that appellees may continue to make carbon black if they can invent a way by which the "heat contained in the gas" shall be "fully and actually applied and utilized for other manufacturing purposes or domestic purposes" it grants an illusory permission and imposes an impossible condition.

It professes to regulate and conserve but aims to destroy.

The utilization of heat prescribed as a condition to the continuance of the business is full utilization.

The statute does not say that the heat shall be used "reasonably" or "so far as possible," but declares that the heat must be utilized "fully," which means completely, entirely, wholly, without lack or defect.

True, an effort is made to construe away the word "fully" as not requiring appellees "to successfully utilize a greater percentage of the heat generated than is capable of being done by those using gas for other purposes only."

But even if this indefinite and widely variable standard were adopted, compliance would nevertheless be impossible for the reasons above stated.

It will be further noted that the requirement is unusual because it is neither imposed upon all who burn gas for carbon black nor upon any who burn gas for other manufacturing purposes.

> "Every exercise of the police power must be reasonable."
>
> *Plessy* vs. *Ferguson*, 163 U. S., 537.

> "The legislature may not under the guise of protecting the public interests, arbitrarily interfere with private business or impose unusual and unnecessary restrictions upon lawful occupations."
>
> *Lawton* vs. *Steele*, 152 U. S., 133, 137;
> *Holden* vs. *Hardy*, 169 U. S., 366;
> *Dobbins* vs. *Los Angeles*, 195 U. S., 223, 236.

Oil is also a fuel, produced and transported under conditions substantially similar to natural gas. It is also an essential ingredient in printing inks, into the composition of which eight times as much oil as gas-black enter. The heating value of oil so used is totally lost. Would it be a reasonable exercise of police power to declare that oil—

or oil from certain wells—must not be sold for such use unless the heat contained in the oil be fully used for domestic or manufacturing purposes!

Wood is a fuel—the oldest and most widely used of fuels. From wood is made news-print paper. Again the heat, or fuel value, is lost. Could it be deemed a reasonable exercise of police power to forbid the sale of wood to pulp mills unless the heat contained therein be fully employed for other uses?

In each instance a fuel is consumed. Its heating value is lost. A product of great pecuniary and cultural value results. The manufacture of the product would be impossible except at the sacrifice of the heat. A requirement that it shall be preserved is unreasonable and destructive.

Waste.

The statute, indeed, contains a recital or declaration that use or sale of gas for the manufacture of carbon black is "wasteful."

And it is seriously urged that it is "waste" merely because the legislature has seen fit to call it so. To quote appellants' brief (p. 97):

> "The legislature has the same right to define waste that it has nuisance or crime and unless its definition is wholly and utterly unrelated to the facts which it assumes to use as the basis of its definition, the courts must leave its action unaffected."

That proposition was thus disposed of in *Coppage* vs. *Kansas* (236 U. S., 1):

> "A state cannot by designating as 'coercion' conduct which is not such in truth, render criminal any normal or essentially

> innocent exercise of personal liberty; for to permit this would deprive the Fourteenth Amendment of its effective force in this respect."

And thus in *Yee Gee* vs. *San Francisco*, (235 Fed. Rep., 757, 764):

> "A mere legislative declaration that a business, harmless and innocuous in itself, is inimical to the public interest, either as a whole or as to some feature of its conduct, cannot make it so, unless by reason of surrounding conditions the declaration can be said to accord with the fact as based upon common observation and human experience."

To waste property, in the accepted meaning of words, is to expend or consume it "carelessly, vainly, foolishly, uselessly or without valuable return." Waste occurs when property is needlessly lost or destroyed without resulting benefit, as when gas is dissipated in the air from open or leaking wells.

Only by distortion of language can the conversion of natural gas, by the most economical methods known, into a product possessing the value, financial, industrial and social, of carbon black be termed careless, vain, foolish, useless or without resulting benefit or valuable return.

The benefit accruing is not alone the financial advantage of the owner of the gas, or even of any single manufacturer or community. It is also the educational and cultural advantage of all the people, arising from the abundant, cheap and rapid multiplication of books, newspapers, music, phonographic records, typewritten manuscripts and carbon copies thereof.

Appellants, while denying none of these things,

assert that the processes, if not exactly "wasteful," are at any rate very "inefficient."

"96% TO 98% INEFFICIENT."

The brief of appellants charges that "the efficiency of the processes used by complainants is very low, ranging only from 2.8% to 4.6%—in other words, from 96% to 98% inefficient." The natural meaning of this language would be a charge that the processes used by appellees are very far below the best processes in use in making carbon black. That is not the sense, however, in which appellants use the language. It would be contrary to the truth if used in that sense.

The bill alleges:

> "That said Midland Carbon Company has constructed and equipped its said factory in accordance with the most improved and modern designs, and uses therein the best and most economical processes, equipment and appliances known; that it operates the same with employes of experience and skill; that it allows no gas to escape into the air, that in order to promote economy in the use of gas it measures by recording meters all gas that is used in its factory, and regulates and controls the pressure thereof by regulators, and that it uses and consumes no more gas in its manufacturing operations than is consistent with the exercise of great care and skill." (Paragraph fifth, Trans., p. 4).
>
> "That by the processes and devices employed at said carbon factory there is obtained from each thousand cubic feet of natural gas consumed, one and three-quarters pounds of carbon black and over two-tenths (.2) of a gallon of high-gravity gasoline" (Paragraph fourteenth, Trans., p. 9).

Mr. Curtze testifies:

> "The process in use at the Midland factory is the best and most improved one commercially known, and is substantially that employed in the most modern factories in West Virginia, Louisiana and other States, embodying the results of many experiments and many years of practical manufacturing experience.
>
> "The gas after passing through the gasoline absorbers, enters the factory at a very low pressure in order to minimize the quantity used. The pressure is controlled by regulators. The supply of air is regulated by a draft system, so as to produce the most economical results. All gas used is carefully metered" (Trans., p. 41).

Mr. Hoskins testifies:

> "Said factory of the Midland Carbon Company is erected and equipped according to the most improved and best known designs for the manufacture of carbon black, and employs the most efficient processes, machinery and appliances for the purpose. I know of no way in which the yield of carbon black at said factory could be improved without sacrificing the quality of the product and rendering it unfit for the purposes for which it is used" (Trans., p. 54).

Mr. Rumbarger testifies:

> "I have also had occasion to analyze the residual products after combustion of the gas in such buildings. The samples tested were obtained under circumstances making it certain that they were fairly representative of the residual products. The results of such tests were extremely good, showing that the gas is not wastefully used. (Giving analysis). These analyses show that there is certainly no waste in the residual gases

> as compared with the flue gases from a furnace or boiler stack.
>
> I have carefully inspected the carbon factory of the Midland Carbon Company at Cowley, Wyoming. Such factory is constructed and operated in a most efficient manner and employs the most modern and improved machinery appliances and processes in the manufacture of carbon black" (Trans., p. 37).

Mr. Hoskins is manager of the plant and has had more than thirty years' experience (Trans., p. 52).

Mr. Curtze is vice-president of the Midland Carbon Company and has had more than thirty years' experience in the manufacture of carbon black from natural gas (Trans., p. 38).

Mr. Rumbarger is a chemist of special training and expert knowledge on the subject of natural gas and its products (Trans., p. 32).

No witness for the appellants attempts to contradict the proof that the methods and processes used by the appellees are the best known and yield the highest amount of carbon black per thousand feet of gas that can be produced by any known method. On the contrary the only witness for the appellants on this point is Mr. Neal, who testifies.

> "the largest yield of which affiant has any knowledge is (as?) recovered by any of the manufacturers of carbon black by the burning of natural gas, is not to exceed one and one-half pounds per one thousand cubic feet of natural gas" (Trans., p. 82).

So appellees use methods more efficient than any known to the appellants or their witnesses, and according to the uncontradicted testimony, the most efficient known anywhere.

By the expression "96% to 98% inefficient" appellants probably mean that only 2.8% to 4.6% of potential heat is preserved, or that only 2.8% to 4.6% of the entire carbon content is actually retained in the form of carbon black as a resultant of the processes used. This claim of small results, as we have seen, is coupled with the concession that we are using the best known processes and producing from each thousand cubic feet of gas the largest results possible to the highest present knowledge and skill.

The whole attention of appellants is directed to the volume of the thing produced as compared with the volume of that from which it is produced.

Quality is ignored. The element carbon is protean, existing in forms so diverse as the diamond, graphite, coal, lignite, oil, the breath exhaled, and in all organic matter (Trans., p. 103). The product, carbon black, is a unique pigment, possessing the brilliance of color, minuteness of subdivision, covering power and complete freedom from hard particles, essential to the great modern presses printing two hundred thousand impressions per hour.

Values are ignored. And on the question of values in any sense that may be taken of the word "values" the evidence is not merely overwhelmingly with the appellees, but it is entirely without conflict. It is shown that the use of natural gas as the appellees use it gives a greater return in actual money for the same amount of gas than can be obtained in any other way. That is not denied. It is shown that the operations of the carbon black factory result in the production of thirteen thousand, six hundred pounds of merchantable carbon black per day, outside of the gasoline produced (Trans., p. 40); that this will print thirty million copies of an ordinary sixteen

page newspaper, or an equivalent in books; that this printing could not be done in accordance with modern requirements by the use of any other substance than carbon black, and that as a practical operation carbon black can only be made from natural gas. None of these things is denied. If we say nothing of the other uses of carbon black, or of the gasoline values saved, the contribution to civilization by using natural gas as appellees use it far surpasses the contributions that are or can be made by any and all other uses of the same quantity of natural gas.

Any attempt to restrict natural gas to a single use, or to two or three uses, as against even more profitable and more valuable uses, cannot be true conservation. In the ordinary gas-burner ninety per cent of lighting efficiency and at least ninety-nine and five-tenths per cent of the heating value of the gas is lost (Trans., p. 33), yet appellants contend that the use of natural gas for lighting is not only allowable but must be considered a preferred use. In the use of natural gas by a most efficient gas engine the loss of heat is seventy seven per cent (Trans., p. 36), and not only is seventy-seven per cent of the heating value lost but one hundred per cent of the lighting value is lost. and one hundred per cent of the carbon which could be made into carbon black is lost.

As to questions of creating products without retaining the original quantities of the same materials from which the various products are made, the processes of appellees are not unique.

Coal is used in making artificial gas. Is it an impeachment of this use of coal that a very large percentage of the weight of the carbon, of the heat producing properties of the coal, is lost in the process? Is the manufacture of artificial gas from coal a waste? Coal is used in generating

electricity, thereby losing all that is ponderable and a very large percentage of its potential heat. But there are uses for electricity which defeat any charge of waste in using coal to produce electricity.

But we are reminded by appellants' brief that three persons, E. D. Sessions, E. A. Sessions and Byron Sessions, who describe themselves as farmers and show no expert knowledge, nor indeed any knowledge of the uses of carbon black, have testified here that they "consider the use of gas for making carbon a wasteful use of a natural resource" (Trans., pages 74, 75 and 76).

And somewhat similar unsworn statements written by unknown persons, whose knowledge or lack of knowledge is unknown, were gravely offered by the appellants because they happen to appear in print.

We cannot see how opinions, even from those with knowledge, could be available on such a question, much less opinions without knowledge.

Counsel cite the "flambeau light case"—*Townsend vs. State* (147 Ind., 624). In so far as that case holds that natural gas belongs to the "negative community" or to the public, like animals *ferae naturae*, it could not be followed by this Court, as the holdings of this Court are clear and distinct that the gas is not public property, but is the common property of the owners of the land in which found until reduced to possession by the drill, when it becomes the private property of him who thus takes it into possession.

The "flambeau case" might be sustained, however, on the ground of protecting the common owners of the gas against unreasonable and wasteful reduction of the common property by one owner through the use of inferior methods consuming excessive quantities of gas in accomplish-

ing given results, which could be as well or better obtained from a small fraction of the gas by superior appliances in common use. The "flambeau" was a great flaming torch, sometimes several feet in length, caused by turning gas into the open air through an opening of considerable size. The light given was of an uncertain kind, and the amount of gas required was very great. "Jumbo" burners were in general use, which confined the gas flame in a glass globe, giving far more and better light and consuming vastly less gas. The statute protected the common owners by requiring the use of the superior and well-known method, while still permitting the lighting of the streets better than by flambeaux.

If there were well-known methods of using natural gas in manufacturing carbon black which would consume a small fraction of the gas now used in the production of the same quantity and quality of that material, and if the statute in the interest of the common owners of the gas required appellees to use the improved methods then the "flambeau case" might be in point. As it stands, that case does not seem to us to touch upon anything here involved.

Indeed, the statute here, instead of seeking the equal protection of the collective owners, aims at discrimination between them. This aspect of the law will be briefly discussed.

Discrimination Between Landowners Having Co-Equal Rights.

While admitting that the law descriminates between landowners, appellants argue that if a full exercise of police power would not be the subject of legal complaint a lesser exercise is necessarily free from it (Brief, p. 74).

That is to say, if the legislature may forbid all

landowners to sell gas for purposes assumed to be "wasteful," it may lawfully forbid some while leaving others free to do so.

In the *Ohio Oil* case (177 U. S., 190) the basis of the power to restrain waste was thus stated (p. 203):

> "Oil and gas, like other minerals, are situated beneath the surface of the earth, but except for this one point of similarity, in many other respects they greatly differ. They have no fixed situs under a particular portion of the earth's surface within the area where they obtain. They have the power, as it were, of self-transmission. No one owner of the surface of the earth, within the area beneath which the gas and oil move, can exercise his right to extract from the common reservoir, in which the supply is held, without to an extent diminishing the source of supply as to which all other owners of the surface must exercise their rights. The waste by one owner, caused by reckless enjoyment of his right of striking the reservoir, at once, therefore, operates upon the other surface owners."

The opinion then defines the nature of the right of the respective owners:

> "As to gas and oil the surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. But there is a co-equal right in them all to take from a common source of supply."

The conclusion is:

> "Hence, it is that legislative power, from the peculiar nature of the right, and the objects upon which it is to be exerted, can

> be manifested for the purpose of protecting all the collective owners by securing a just distribution, to arise from the enjoyment by them of their privilege to reduce to possession and to reach the like end by preventing waste."

Manifestly the contour and extent of the field or reservoir constituting the common source of supply are determined by geological conditions, bearing no reference to the boundaries of incorporated political sub-divisions or to the location of industrial plants.

If the fugitive character of natural gas, and the "co-equal right of all landowners to draw from a common source of supply" is, as stated, the very basis of the power of the legislature to restrain waste, then argument certainly cannot be needed to show that it may not lawfully require some to desist from such "waste" while permitting the same "waste" to others. The two propositions are mutually destructive.

The co-equal right to acquisition and use cannot be violated without infringement of constitutional rights, but it is necessarily violated if permission to use from the common store is granted to some and denied to others.

Still more glaringly is it violated if permission to "waste" or "wastefully use" from the common store is denied to some and granted to others.

Yet this is the precise construction of the law adopted and upheld by the state officials.

Their answer says (paragraph 17, Trans., p. 62):

> "These defendants deny that said act discriminates between owners and lessees of gas wells * * * except that those within the prescribed area or radius shall dispose of their product only for domestic

or industrial uses and not for purposes defined as and declared to be wasteful."

That is to say, of two owners of adjacent mineral property, one outside the ten mile distance from any incorporated town or industrial plant, the other within said distance, the one may use or sell natural gas for carbon black manufacture without restraint, while the other may not. The one favored may thereby be enabled in process of time to appropriate a substantial amount of gas from the common reservoir, while his neighbor is debarred from using or disposing of the same gas for the identical purpose.

The statute is thus shown to be as unjust in operation as it is unconstitutional in principle.

In *Lindsley* vs. *Natural Carbonic Co.* (220 U. S. 61) cited by the appellants, the statute attacked prevented the surface owners from "pumping or otherwise drawing by artificial appliances, from any well made by boring or drilling into the rock, that class of mineral waters holding in solution natural mineral salts and an excess of carbonic acid gas, or pumping or by any artificial contrivance whatsoever producing an unnatural flow of carbonic acid gas," for the purpose of vending the gas apart from the water.

As construed by the state courts, the act prohibited only the use of pumps or artificial contrivances to accelerate the natural flow of percolating water, with the object, not to use the water in connection with the enjoyment of the land, but to extract and vend the gas as merchandise, allowing the water to run to waste. (*Hathorn* vs. *Nat. Carbonic Co.* 194 N. Y. 336, 342-3; *Peo.* vs. *N. Y. Carbonic Co.* 196 N. Y. 421, 433-5; See also *Forbell* vs. *City of New York*, 164 N. Y. 522).

So construed, it was sustained, this Court saying (at page 77):

> "Some surface owners having wells bored or drilled into the rock engage in extensive pumping operations for the purpose of collecting the gas and vending it as a separate commodity. Usually where this is done an undue proportion of the commingled waters and gas is taken from the common supply, and a large, if not the larger portion of the waters from which the gas is collected is permitted to run to waste * * * It is to correct this evil that the statute was adopted, and the remedy which it applies is an enforced discontinuance of the excessive and wasteful feature of the pumping. It does not take from any surface owner the right to tap the underlying rock and to draw from the common supply, but, consistently with the continued exercise of that right, so regulates its exercise as reasonably to conserve the interests of all who possess it."

Even if the analogy between water and natural gas were complete, the present law is wholly dissimilar. There the thing forbidden was the use of pumps or similar contrivances "producing an unnatural flow." Here the appellees appropriate only a small portion of the natural flow. There the purpose was to protect all possessing the right to draw from the common supply by prohibiting interference with natural laws of flowage. Here the statute has no relation to a flow unnaturally induced by artificial means, nor to the protection of the collective owners. No objection is made to unnatural or excessive appropriation, as such. No obstacle is interposed to excessive appropriation for carbon black purposes by certain of the collective owners. No appropriation at all for such purposes is permitted to the appellees. And the restriction is imposed in the interest of those who have no ownership in the surface or in the reservoir of gas.

FURTHER AS TO ARBITRARY DISCRIMINATION.

In *Connolly* vs. *Union Sewer Pipe Company* (184 U. S., 540) this Court thus reaffirmed familiar principles which must govern legislative action:

> "In prescribing regulations for the conduct of trade, it cannot divide those engaged in trade into classes and make criminals of one class if they do certain forbidden things, while allowing another and more favored class engaged in the same domestic trade to do the same things with impunity. It is one thing to exert the power of taxation so as to meet the expenses of the Government and at the same time indirectly to build up or protect particular interests or industries. It is quite a different thing for the State under its general police power to enter the domain of trade or commerce and discriminate against some by declaring that particular classes within its jurisdiction shall be exempt from the operation of a general statute making it criminal to do certain things connected with domestic trade on commerce. Such a statute is not a legitimate exercise of the power of classification, rests upon no reasonable basis, is purely arbitrary and plainly denies the equal protection of the laws to those against whom it discriminates."

The statute there under consideration read that:

> "The provisions of this act shall not apply to agricultural products or live stock while in the hands of producer or raiser."

The Court held that the exemption was unreasonable and rendered the whole law invalid as denying the equal protection of the laws to the classes subjected to its provisions.

See also:

International Harv. Co. vs. *Missouri*, 234 U. S., 199, 215;
Gulf, Col. and Santa Fe R. R. Co. vs. *Ellis*, 165 U. S., 150;
Cotting vs. *Stock Yards*, 183 U. S., 79;
McFarland vs. *American Sugar Refining Co.*, 241 U. S., 79;
McFarland vs. *American Sugar Refining Co.*, 229 Fed., 284;
Smith vs. *Texas*, 233 U. S., 630.

In the light of these principles let us test by example the operation of the law.

In each illustration it is assumed that the heat contained in the gas is not "fully" utilized for domestic or manufacturing purposes.

1. The landowner who sells, and the manufacturer of black who uses, gas drawn from a well located more than ten miles from an "industrial plant" are innocent. If there be another "industrial plant" within a radius of ten miles, the same acts and practices become criminal.

The only conceivable purpose is to contribute to the success of privately owned industrial plants using natural gas fuel, by eliminating the competition of the manufacturer of carbon black as a purchaser. That is a private and particular purpose.

The result is, to render the selection of offenders dependent, not on the failure to utilize heat, but on the choice of any third person who may elect to build an industrial plant within ten miles of the gas well.

If any third person, by locating an "industrial plant" within an area of three hundred square miles surrounding a gas well has it in his power

to penalize sales of gas and manufacturing operations that would otherwise be innocent, then it follows that the selection of those subjected to the penal provisions of the act is an arbitrary one, dependent on the volition or choice of such third person, who is charged with no public duty, and whose acts are subject to no judicial scrutiny or restraint.

> "Those who are attempted to be subjected to the penal provisions of the act are determined by an arbitrary selection, wholly without regard to any difference in their delinquency and that of those whom the statute leaves untouched."
>
> *American Sugar Refining Co.* vs. *McFarland*, 229 Fed., 284, affirmed 241 U. S., 79.

2. A plant for the extraction of gasoline from natural gas uses machinery, human industry and mechanical power for the production of a commercial product, and is certainly an "industrial plant." The presence of such a plant would therefore of itself bring a carbon black factory within the statute. In other words, according to the language of this "conservation" law, black manufacture from gas outside the prohibited zone, without heat utilization, would not be wasteful so long as the gasoline is wasted, but if, as in the case at bar, a plant be installed to avoid wasting this valuable by-product, the black business *ipso facto* becomes wasteful, unless means be found fully to utilize the heat. The attempt to save the by-product renders the whole thing criminal.

3. A carbon black factory located in an incorporated town and consuming gas drawn from a well more than ten miles distant, does not offend against the statute.

Another factory, located in the same community, carries on identical manufacturing operations, using gas produced within ten miles.

Obviously in each case the loss of heat occurs at the same place—the town where the gas is consumed, not the well where it is produced.

The heat, as such, is of equal amount, usefulness and value, regardless of the distance the gas may have been transported.

Yet the conduct of the second of these manufacturers is criminal, while the conduct of the first is free of such imputation although he does the same acts in the same place.

4. Manufacture of carbon black, conducted without heat utilization, from gas derived from a well located within ten miles of an *incorporated* town is penalized.

The identical manufacture escapes the condemnation of the statute, if the town, though of equal or greater population, be *unincorporated.*

In this case the selection of offenders depends solely upon whether or not the inhabitants of the town have chosen to incorporate it, not on any difference between the conduct or practices of those declared to be guilty and those who escape condemnation.

What relation the fact of incorporation bears to the delinquency is hard to conceive. Yet that fact is decisive.

5. The Wyoming statutes provide (Compiled Statutes, Section 1551):

> "Any territory not included in any incorporated city or town which shall contain a resident population of not less than one hundred and fifty persons, and which shall contain within its boundaries an area of not exceeding three square miles may

be incorporated as a town in the manner herein provided."

There may be, as at Cowley, billions of cubic feet of natural gas shut in and unmarketable save for the manufacture of gasoline and carbon black. The black manufacturer may, as at Cowley, have actually been the means of providing the gas supply of the town.

Yet here the prohibition is absolute, whereas the identical manufacture may be conducted in the largest town or city, provided the source of its gas supply is more than ten miles distant.

6. The arbitrary features above alluded to are not confined to the manufacturer, since all the penalties of the statute are vicariously visited upon the vendor of the gas, whether he be contractor, owner or lessee.

Frequently in sparsely settled regions carbon black manufacture furnishes not only the most profitable market, but the only market in which natural gas is commercially vendible in quantities sufficient to repay the cost of development and production. (Trans., pp. 9, 41-2, 51-2).

The landowner, under the statute, not only runs the risk of being at any time deprived of the chief or only market for the commodity he produces by the decision of one hundred and fifty persons to form an incorporated town or by the decision of one person to build a factory. He also incurs the further risk that other landowners, drawing gas from the same reservoir, but situated at a greater distance from the town or factory, may still enjoy the right to sell gas in the market from which the law excludes him.

The statute thus violates the fundamental principle of equality among landowners in the right to take, use and sell natural gas, which in-

evitably follows from a perception of the nature of natural gas property and the inter-relation of the several owners to the common source of supply.

Summary of the Argument.

The challenge to the statute rests on the following grounds:

1. Natural gas, either before or after it is reduced to possession, is not public property. While it remains in the underground reservoir it is the common property of the landowners, who have a co-equal right to proportionate acquisition. After reduction to possession, it is private property, a commodity of commerce.

2. Most favorably viewed, the purpose of the present statute was not the protection of the rights of the collective owners, but the commercial advantage of certain purchasers of gas residing or conducting manufacturing operations in the vicinity of the gas field.

3. Read in the light of actual conditions, the purpose was the narrower one of benefiting the manufacturing establishments in the single town of Lovell, by appropriating the property of these particular appellees.

4. The statute takes property because it deprives property of one of its essential attributes, viz. the right of sale to the highest bidder and of use for a purpose in no wise detrimental to public health, morals or safety but on the contrary of the greatest benefit to the entire public, as distinguished from particular individuals or groups.

5. The accusations of waste or inefficiency are rebutted, first, by the fact that the best known

methods and processes are employed, second, by the fact that equal or greater losses attend other human efforts to use fuels, as in the use of gas or electricity for lighting, and finally by the fact that the value of that which results, whether judged by a commercial, industrial or cultural standard, far exceeds the value of the gas for any other purpose.

6. The permission to sell or consume gas for the manufacture of carbon black on condition that the heat be fully utilized for some other purpose is impossible and illusory.

7. The statute not only fails to protect or regard the co-equal rights of the collective owners. It discriminates between them, and is otherwise arbitrary, unreasonable and discriminatory in the classification of offenders against its provisions.

It is submitted that the decision granting an interlocutory injunction was in all respects right and should be affirmed.

Respectfully submitted,

JOHN W. LACEY,
HERBERT V. LACEY,
REID L. CARR,
Of Counsel for
Appellees.